



BRITISH PHARMACEUTICAL CONFERENCE.

NOTTINGHAM MEETING.

THE proceedings of the Conference commenced on Tuesday, August 21, 1866, under the presidency of Professor BENTLEY, F.L.S. The place of meeting was the large hall of the Assembly Rooms, Nottingham. The hall was divided by a temporary partition into two spacious apartments, one of which was appropriated to the exhibition of objects relating to pharmacy, while the other, which had been comfortably furnished as a lecture-room, was used for the sittings of the Conference.

More than fifty members were present at the first sitting, and many of them were gentlemen whose names are familiar to all who have studied the records of pharmaceutical progress in Britain.

The first business of the meeting was the election of seventy-seven new members, namely:

Messrs. Baldock, Barker, Bicknell, Bosley, Bourdas, Bremridge, Charity, Darby, Granger, Harvey, Henty, G. R. Johnson, J. G. Johnson, Maw, T. N. R. Morson, T. Morson, Savory, C. Savory, Tidman, T. D. Watson, J. Williams, and G. H. Wright of London.

Messrs. Ault, Collinson, Dennis, Goodyer, Harbutt, F. Johnson, Oakland, Parker, S. Shipperley, jun., and the Rev. Mr. Carver of Nottingham.

Mr. Robinson of Alfreton; Mr. Faull of Beeston; Messrs. Blain, Harwood, Knott, and Terry of Bolton; Mr. Crawshaw of Burnley; Mr. Christopher of Crickowell; Mr. Hart of Derby; Mr. Howarth of Doneaster; Mr. Tait of Edinburgh; Mr. Ransome of Hitehin; Mr. Curtiss of Holbeach; Mr. Potts of Ilkeston; Mr. Greaves of Ironville; Mr. Watkinson of Kearsley, Farnworth; Messrs. Smeeton and G. Ward, F.C.S., of Leeds; Messrs. D. and J. Watson of Leicester; Mr. Shemmonds of Lichfield; Mr. A. Redford of Liverpool; Messrs. T. S. Johnson, Siebold, S. H. Taylor, and Whyte of Manchester; Mr. Jackson of Mansfield; Mr. Greaves of Matloek Bath; Mr. Hodgkinson of Matloek Bridge; Mr. Marreco of Newcastle-on-Tyne; Mr. Gould of Newcastle-under-Lyme; Mr. Houghton of Oxford; Mr. Kemp of Portobello, Mid-Lothian; Mr. Ellinor of Rotherham; Messrs. W. and G. R. Gowland, Hill, Radley, and E. Wilson of Sheffield; Mr. Phillips of Shrewsbury; Mr. Littlewood of Sutton in Ashfield; Mr. Pars of Thrapstone; Mr. Guyer of Torquay; Mr. T. H. Holloway of Upper Sydenham; Mr. Francis of Wrexham.

The PRESIDENT stated that apologies for non-attendance had been received from Messrs. J. C. Braithwaite, Henry Matthews, and Williams of London; Mr. Tylee of Bath; Mr. Wilkinson of Manchester; and several other gentlemen.

Dr. ATTFIELD then read the following Report:—

"REPORT OF THE EXECUTIVE COMMITTEE.

"Since the last annual gathering of the members of the Conference at Birmingham in September, 1865, your Committee have met but twice. On the first occasion arrangements were completed for the publication of the volume of proceedings, a copy of which was shortly afterwards issued to the members and to a few eminent scientific men and societies of Europe and America. At the second meeting, the annual list of subjects for investigation was compiled, a copy being subsequently sent to every member. The proposal of the Nottingham Local Committee to hold an exhibition of objects relating to pharmacy during the week of the annual meeting in that town was at the same time carefully considered and approved, arrangements for carrying out the same under the auspices of the Conference being cordially adopted.

"During the past year death has removed three members from our roll, men whose names are well known to all interested in progressive pharmacy, Mr. W. Southall, of Birmingham; Mr. T. B. Teasdale, of Darlington; and Mr. H. Booth, of Rochdale.

"The total number of members of the Conference for the year 1865-66 was 305; it is now nearly 400.

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"The Executive Committee cannot but congratulate the members on the rapid and successful progress which the Conference has made. Whether we look to the many and important papers which have been read at its two annual meetings, to the brotherly feeling and co-operation which have been developed among those attending the gatherings, or to the good local influence which its yearly celebration has produced, we see evidence of the soundness of its constitution, and tangible proofs of its healthy prosperity.

"And now, having established the Conference on so firm a foundation, and looking with pleasure and satisfaction on the many names of known workers which its register includes, we would appeal to all members to canvass the professional brethren of their own or other towns with the special object of largely increasing our number. The formation of exhibitions similar to that which is so prominent a feature of the present meeting is but one means of aiding the advancement of pharmacy, which might be adopted by your Executive, were more subscriptions at their disposal. The Committee trust that this method of widening the basis of operation without altering the character of the Conference will receive the individual attention of the members."

The Balance-sheet showing the financial position of the Conference was then brought forward by the Treasurer, Mr. H. B. BRADY. This account showed that at the opening of the Meeting the Treasurer had a balance in hand of £4 1s. 6d., and that the subscriptions in arrear amounted to £24 5s.

Mr. R. W. GILES (Clifton) moved the adoption of the Report, and in doing so congratulated the Conference on its increased strength and influence. Among the gentlemen just elected as members, there were many who bore historic names, and their desire to be connected with the Conference might be taken as a proof that the body was firmly established.

Mr. FITZHUGH (Nottingham) seconded the motion, which was carried unanimously.

COMMUNICATION FROM PROFESSOR PARRISH, OF PHILADELPHIA.

Mr. DYMOND (Birmingham) said, it would be observed that Professor Parrish, of Philadelphia, had contributed, on behalf of the American Pharmaceutical Association, a fine collection of articles to the Exhibition. A letter he had received from Professor Parrish invited the Conference to send a deputation to the next meeting of the American Society, which would be held in Michigan, in 1867. Any person whom the Conference might send, would be heartily welcomed by the American pharmacists. In a former communication Prof. Parrish had said that he and his colleagues would be glad to receive a contribution for their exhibition from England. He (Mr. Dymond) therefore thought it would be desirable for the Conference to consider what the contribution should be, and whether they should send any one to represent them. Of course, the expense of sending a deputation would be great, and if any gentleman connected with the Conference was likely to be in America when the Association met, perhaps it would be well to appoint him as their representative.

The PRESIDENT was quite sure he was only expressing the unanimous opinion of the Conference when he said that they cordially reciprocated the fraternal feelings of the American pharmacists. One member of the Conference (Dr. Edwards) would probably be in America next year, and might, perhaps, be induced to represent English pharmacy at the Michigan meeting.

Mr. DEANE (Clapham) feared that it would be impossible for the Conference to send a special deputation to America. He was glad to find their American brethren taking such great interest in the Conference. He had received many communications from Mr. Bedford, of New York, couched in most courteous and agreeable terms, as if they had been on a friendly footing for many years. Mr. Bedford had sent him a series of photographs of many of the presidents and members of the Association, which he would place in the Exhibition room. They should do their best to reciprocate the friendly feeling which their American brethren had shown towards them, but at the same time, he did not think that they could take any active steps in the matter at present.

Professor Parrish's communication was then referred to the General Committee, with the understanding that arrangements should be made for forming a collection of articles to send to America.

The PRESIDENT then delivered the following address :—

ON THE STUDY OF BOTANY IN CONNECTION WITH PHARMACY.

Having had the honour of being called upon to preside on this occasion, it devolves upon me to open the proceedings of the Conference with an introductory address; and, after mature consideration, I have thought that in no way could I better discharge my duty than by pointing out the relations which exist between botany and pharmacy, and the consequent advantages which the pharmacist must derive from a knowledge of botanical science. The question *en bono*, to what practical end and advantage do your studies tend? is one which, however distasteful to those who love knowledge for its own sake, and for the priceless pleasures it brings, is nevertheless one which can never be lost sight of by the working bees in this necessarily utilitarian age. I know that by many, perhaps by most pharmacists, the study of botany is regarded as of but little value—indeed, by some as practically useless. It will be my object on the present occasion to show that such conclusions must be founded on a very imperfect knowledge of the science of botany, and the important and intimate relations it has to, and its practical bearings upon, the profession of pharmacy.

The time allotted to the meetings of the Conference will not allow me to devote that attention to the subject which its importance deserves; hence I shall confine myself to the consideration of some of the more immediate and direct advantages which the pharmacist will derive from a knowledge of botany, leaving its value as a mental training and as a recreation to some future opportunity. Firstly, I find that at the present time there are about four hundred species of plants, some parts of which, or their products and secretions, are employed as remedial agents, and a considerable proportion of which enter into the official preparations of the British Pharmacopœia. It cannot but be regarded as important that those who have constantly to handle and make use of these substances should be able to recognise the species of plants which yield them, to know the countries from which they are derived, to describe their general characters and structure, their positions in the vegetable kingdom, and their medical properties and uses. Indeed, the value of such knowledge ought to be manifest to all, as without it the pharmacist would be unable to guard against fraudulent adulteration, accidental substitution, or the ignorance of herb-gatherers and herbalists. Two cases which have recently come under my own observation will bring prominently under notice the importance of a knowledge of botany in the detection of substitutions and adulterations. One was the substitution of double feverfew flowers for those of chamomile; and the other, the admixture of the stamens with the official style and stigmas of the saffron plant. The former will exhibit the importance of an accurate knowledge of the diagnostic characters of plants and their parts; and the latter the necessity of an acquaintance with the general characters and structure of the different parts of plants. None but a botanist would have detected and traced such adulterations to their right sources; and the fact of the latter adulteration having hitherto been undetected in Great Britain, and only once briefly noticed abroad as having occurred in France, although since proved by me to have been practised in this country for many years, clearly exhibits the general ignorance of botany amongst pharmacists, and the necessity which exists for its more careful, general, and systematic study.

As regards plants of foreign origin, it is true that most pharmacists would have but little opportunities of becoming acquainted with them, but if such should be the case, and the pharmacist were compelled to confine his practical study of plants to those indigenous to, or apparently wild in, this country, he would find much to instruct and interest him, for he would thus not only learn how to distinguish the poisonous species from those which were harmless, and in this way might be means of averting serious accidents, but he would find many which were official in the British Pharmacopœia, and with which he ought to be thoroughly acquainted, as *Aconitum Napellus*, *Papaver somniferum*, *Papaver Rhœas*, *Sinapis nigra*, *Sinapis alba*, *Cochlearia Armoracia*, *Linum usitatissimum*, *Rosa canina*, *Sorothamnus Scoparius*, *Conium maculatum*, *Sambucus nigra*, *Valeriana officinalis*, *Anthemis nobilis*, *Taraxacum*, *Dens Leonis*, *Arcto-*

staphylos Uva Ursi, *Solanum Dulcamara*, *Datura Stramonium*, *Hyoscyamus niger*, *Atropa Belladonna*, *Mentha piperita*, *Mentha viridis*, *Digitalis purpurea*, *Lupinus Mezerium*, *Daphne Laureola*, *Ulmus campestris*, *Humulus Lupulus*, *Quercus pedunculata*, *Pinus sylvestris*, *Abies czeelsa*, *Juniperus communis*, *Crocus sativus*, *Colchicum autumnale*, and *Aspidium Filix-mas*. It is botany that gives us the knowledge required to recognise these species, and to distinguish them from other plants with which they may be intentionally or ignorantly mixed, or for which they have been substituted.

A knowledge, again, of the general properties of the various Natural Orders of plants will give us a clue in the search for new remedies; for it is very probable that in a country like our own, which, as we have just seen, contains so many important plants growing in a wild state, may also yield many others, the properties of which are as yet unknown; and even should such not be the case, it will doubtless direct more attention to the properties of our native plants, some of which are but too little appreciated at the present day, so that, in the event of war or any other cause which may occasion a deficiency or withdrawal of any of our important remedies now obtained from abroad, we might find substitutes at home. I must content myself with one illustration of the importance of keeping up a knowledge of the properties of the plants of this country. This is afforded us by the *Aspidium* or *Nephrodium Filix-mas*, the male fern, one of the commonest plants of this country. The root, or more properly the rhizome, of this plant had been reputed for ages to possess powerful anthelmintic properties, but in consequence of the common use of medicines of like properties obtained from abroad, its virtues were almost lost sight of until lately, when in consequence of the introduction from Abyssinia of Kouso, a substance reputed to possess most powerful vermifuge properties, attention was again directed to it, and it was introduced into the British Pharmacopœia; and I believe most persons will agree with me that its reputation is now established, as the most valuable and certain anthelmintic in that volume. Besides this, there are without doubt many other indigenous plants which are not at present official, or which are but very little employed, or whose properties are altogether unknown, which would be available, and would have their reputation established as important remedial agents should any necessity for their employment arise.

Thus, in the first place, we may take as illustrations the Natural Orders Malvaceæ and Gentianaceæ. The plants of the former Order are generally characterized by mucilaginous and demulcent properties, and these are prominently manifested in our indigenous *Althœa officinalis* and *Malva sylvestris*, both of which were, until the publication of the British Pharmacopœia, official in this country; and why the former, certainly one of the best emollient and demulcent medicines known, should have been omitted from that volume, I am at a loss to conceive, for nothing has been introduced in its place which will altogether replace it. Again, the plants of the Gentianaceæ are all more or less bitter, and possess stomachic and tonic properties; and as we have many common plants indigenous to this country belonging to that Order, they might be employed, if necessary, as substitutes for the official *Gentian* and *Chiretta*, which are of foreign origin; as, for instance, the *Menyanthes trifoliata*, *Erythrœa Centaurium*, *Chlora perfoliata*, *Gentiana campestris*, and other species of *Gentiana*, etc. Indeed, the two former plants were included in the last Edinburgh Pharmacopœia, but they were but little used, their properties being comparatively unknown, owing principally to the common use of the readily obtainable gentian; nevertheless they both possess, particularly the former, well-marked stomachic and tonic properties, and are probably equally efficacious as the *Ophelia Chirata*, now introduced into the British Pharmacopœia.

Then, again, amongst our indigenous plants we have many with well-marked purgative and astringent properties. Thus, amongst those of a purgative nature we may mention the *Linum catharticum*, *Rhamnus catharticus*, *Euphorbia Lathyris*, *Helleborus foetidus* and *Helleborus viridis*. Some of these might be frequently substituted with advantage for drugs of similar properties derived from foreign plants. Of astringent plants we have a great many growing wild in this country, two of which are especially valuable, namely, the *Potentilla Tormentilla* and the *Polygonum Bistorta*. With regard to the former, Dr. Christison has justly remarked that "it is equally applicable with catechu, kino, and other astringents of foreign

origin in the treatment of chronic dysentery and other chronic mucous discharges."

Another indigenous plant, of much value, is the *Acorus Calamus*. This is abundant in the marshes and by the sides of rivers in some parts of this country. Many pharmacologists have borne ample testimony to the value of its rhizome in medicine, as a stimulant excitant and mild aromatic tonic, and as a remedy in intermittent fevers; but it is scarcely or ever employed at the present time, though, as stated by Pereira, "it might be frequently substituted, with good effect, for the more costly Oriental aromatics. Again, as is well known, we can obtain from the bark of various species of *Salix* and *Populus*, the alkaloid salicine, which has been found to possess well-marked tonic, and to some extent anti-periodic properties, and which has consequently been tried as a substitute for the alkaloids quinia and cinchonia. Some few years ago, in consequence of an anticipated scarcity in our supplies of cinchona barks, much attention was directed to salicine; and although, in consequence of the successful cultivation of Cinchonas in India, no deficiency of barks is now likely to occur, it is right that we should not lose sight altogether of any substance which is calculated even in the slightest degree to act as a substitute for the valuable alkaloids obtainable from those barks. Again, the *Arum maculatum*, so abundant in our hedges, etc., would yield us, if required, abundance of starch, which might be employed as a substitute for sago and the various kinds of arrowroot now derived from abroad. The above are but a few of our indigenous plants which have been found to possess well-marked medical properties; if time allowed, I might refer to a host of others, as the *Chelidonium majus*, *Cochlearia officinalis*, *Saponaria officinalis*, *Viola odorata*, *Agrimonia Eupatoria*, *Bryonia dioica*, *Archangelica officinalis*, *Daucus Carota*, *Galium Aparine*, *Cotyledon Umbilicus*, *Inula Helenium*, *Artemisia Absinthium*, *Achillea Millefolium*, *Lactuca virosa*, *Cyclamen hederifolium*, *Borago officinalis*, *Melissa officinalis*, *Marrubium vulgare*, *Gratiola officinalis*, *Chenopodium olidum*, *Asarum europæum*, *Aristolochia Clematitis*, etc., etc.; but they will be sufficient as illustrations of the importance of a knowledge of botany to pharmacutists resident in this country. The observant pharmacist may even, by a diligent prosecution of botany, be the means of enlarging the boundaries of science, for as has been well observed of the study of natural history:—

"So wide, indeed, is the scope which this science embraces, so multifarious are the points of information to be elicited, and so easily may many of these points, under peculiar circumstances, be elucidated, that there is room for the beneficial endeavours of the youngest student, no less than of the most matured and philosophic mind. The successful prosecution of natural history, like that of all other demonstrative sciences, depends upon facts; and when we consider the number of the data necessary to complete the history of an individual species, and then reflect on the hundreds of thousands of species which exist upon the earth, we shall immediately perceive that every attentive observer has the power of contributing something towards his favourite science—something which has been yet unobserved, or if observed, unrecorded. He may thus remove the veil from one stone at least of the temple of nature, or he may, by the discovery of one single but important fact, clear away an accumulation of doubts and difficulties that have long impeded the paths of the greatest adepts."

But if a knowledge of botany be so desirable and so valuable in its results to the pharmacist resident in this country, it will become of far greater service if he be led by desire of gain, ambition, pleasure, or any other cause, to visit or reside in a comparatively unknown part of the world; and in a nation like our own, with colonies in all parts, such a contingency is by no means unlikely to arrive. Then his acquaintance with botany will give him a clue to the properties of the plants he will find growing around him, for its study will have informed him that those which are closely allied in structure—that is, those belonging to the same Natural Orders—may be expected to resemble each other in their medical and other properties. He will thus know that whilst the plants of some Orders are almost without exception poisonous, or to be regarded with suspicion, those of others are at least harmless; while those of other Natural Orders may be expected to possess some important properties, which will render them valuable as medicines, or as applicable for manufacturing purposes, or in the arts, or domestic economy.

Thus, to take a few illustrations, a knowledge of systematic botany will have informed him that the plants of the Natural Orders Cruciferae, Caryophyllaceae, Malvaceae, Sterculiaceae, Byttneriaceae, Tiliaceae, Aurantiaceae, Vitaceae, Rutaceae, Linaceae, Rosaceae, Crassulaceae, Passifloraceae, Cactaceae, Grossulariaceae, Myrtaceae, Onagraceae, Boraginaceae, Lamiaceae, Orchidaceae, Palmaceae, Cyperaceae, Gramineae, and numerous others, are generally harmless, as these Orders scarcely contain any well-marked poisonous species; while at the same time he will have learned that the plants of the Orders Ranunculaceae, Menispermaceae, Papaveraceae, Sapindaceae, Coriariaceae, Anacardiaceae, Cucurbitaceae, Umbelliferae, Lobeliaceae, Apocynaceae, Loganiaceae, Solanaceae, Scrophulariaceae, Artocarpaceae Euphorbiaceae, Amaryllidaceae, Melanthaceae, Araceae, and others, are to be regarded with suspicion, as they all contain poisonous plants, and some scarcely comprise any but highly dangerous plants.

Then, again, do we wish to know the medicinal properties of plants, or to search for new remedies, we have an important guide in a knowledge of botany. Thus, the Papaveraceae yield a milky juice, which frequently possesses well-marked narcotic properties; the Cruciferae are antiscorbutic and stimulant; the Malvaceae, Sterculiaceae, and Tiliaceae mucilaginous and demulcent; the Guttiferae, acrid and purgative; the Rutaceae, antispasmodic, diuretic, and tonic; the Linaceae, emollient and demulcent; the Oxalidaceae, refrigerant; the Simarubaceae, bitter and tonic; the Rosaceae, Lythraceae, and Saxifragaceae, astringent; the Cucurbitaceae, acrid and purgative; the Myrtaceae, aromatic and pungent; the Cinchonaceae, tonic, febrifuge, and astringent; the Valerianaceae, stimulant and antispasmodic; the Gentianaceae, tonic; the Convolvulaceae, purgative; the Solanaceae, narcotic; the Boraginaceae, mucilaginous and emollient; the Lamiaceae, aromatic, carminative, and stimulant; the Piperaceae, acrid, pungent, aromatic, and stimulant; the Lauraceae, aromatic, stimulant, tonic, and diaphoretic; the Myristicaceae, aromatic, stimulant, and carminative; the Pinaceae yield turpentine, pitch, and resinous substances; the Zingiberaceae are aromatic, stimulant, and stomachic; and the Marantaceae yield starch in large quantities. The above are but a few illustrations, given for the purpose of exhibiting the value of a knowledge of botany in guiding us in the search for new remedies, if we should be stationed in a comparatively unknown country, or even in a limited degree in our own native land.

It is right, however, that I should mention, that plants which are now placed by botanists in the same Natural Orders are frequently found to possess very varying properties. Thus, the poisonous *cocculus indicus* plant is in the same Order with that of the *calumba* and *pareira brava*; the edible *mango* with the *poison-ash*; the highly poisonous *calabar bean* with the *liquorice*; the powerful *elaterium* with the edible *melon* and *cucumber*; the poisonous *hemlock* with the edible *parsnip* and *carrot*,—the aromatic, stimulant, and carminative *anise*,—and the foetid *assafœtida*; the deadly *Madagascar poison-nut* with the nutritious *cow-tree* of Demerara; the narcotic *belladonna* and *henbane* with the edible *potato* and stimulant *capsicum*; the *breadfruit* and the nutritious *cow-tree* of South America with the poisonous *Upas*; the edible *asparagus* and *onion* with the purgative *aloes* and the diuretic *squill*; the powerful *colchicum* and *cevadilla* with the slightly astringent *Uvularia*; the narcotic *Lolium* with our corn producing plants; and other examples of a like kind might be readily found. Many illustrations might even be given of varying properties in plants now regarded as belonging to one and the same genus. A few examples, must, however, suffice:—Thus, the highly poisonous *Aconitum ferox* and *Aconitum Napellus* are placed with the febrifugal *Aconitum heterophyllum*; the poisonous *Capparis pulcherrima* with the stimulant and antiscorbutic *Capparis spinosa*; the delicious *Mangosteen* with the powerfully-purgative *gamboge*; the *Guarana* or *Brazilian cocoa* with the poisonous *Paullinia pinnata*, *P. Cururu*, and *P. australis*; the edible *Coriaria nepalensis* and *C. sarmentosa* with the poisonous *Coriaria myrtifolia* and *C. ruscifolia*; the highly-poisonous *Strychnos Nux-vomica* with the harmless *S. Pseudoquina*; the edible *potato* with the woody *nightshade*; and the sweet *cassava* with the poisonous *bitter cassava*. It should be noticed, however, in regard to the varying properties possessed by species of the same genus, that one part of a plant frequently possesses

different properties from another, and that while one may be poisonous, another may be harmless; hence, in comparing the properties of one plant with another, the same parts of each should be taken. With such precautions we shall find but comparatively few examples of difference of properties in plants of the same genus, although such may be occasionally found, as the fruits of the different species of *Capparis*, *Gambogia*, *Coriaria*, and *Solanum*; the barks of the species of *Strychnos*; the root of species of *Manihot*, etc.

In reference to the above apparent exceptions of plants arranged in the same Natural Orders, etc., having different properties, it should be remembered that no properly educated botanist would pretend to say that any of our natural systems, as at present constructed, is altogether perfect, for such cannot be the case until we possess a much greater knowledge of plants than we can as yet boast of; but at the same time all searchers after truth must admit, from the many examples quoted above of the general medicinal properties of certain Natural Orders, that a knowledge of them, even as at present defined, is of most essential service in guiding us to an acquaintance with the properties of unknown plants; and I think, therefore, that we may justly conclude that the apparent exceptions which we occasionally find in the properties of certain plants to those now placed by us in the same Natural Orders, are due to some differences of structure, or to the varying conditions under which they have been placed, which, in our present imperfect knowledge, we have overlooked, or regarded as unimportant, for no one can as yet form any conclusions of value as to the effect an apparently trifling difference of structure would produce, or what change might not be occasioned by an alteration of the conditions under which plants were placed. Such exceptions, therefore, instead of discouraging and inducing us to lay aside the search after a true natural system as useless, should rather act as a stimulus to further investigation; for, to use the words of Linnæus, the formation of a true natural system should be regarded as the "*primum et ultimum in botanici desideratum*."

We find, therefore, that a pharmacist possessed of a good knowledge of botany would, in case of need, or in a deficiency of supply in the drugs of ordinary use, and with which he was well acquainted, possess a clue to the resources by which he was surrounded, and would accordingly, in many cases at least, be as much at home in a comparatively unknown country as in his own native land; for such knowledge would enable him to search for new remedies, when he would be almost certain to find something of value, not only for his own use, but for that of the world at large. In this way he might be the instrument of discovering a most important remedial agent, which, by the blessings it would confer upon mankind, would be the means of handing down his name to posterity as one of the great benefactors of the human race. In this respect alone, therefore, a knowledge of botany cannot but be considered as of the most essential service to the pharmacist, whether residing in this or any other part of the world.

Another way in which an intimate acquaintance with the parts of plants would be of the greatest advantage to the pharmacist is, by the assistance it would afford him when called upon to ascertain the cause of death or otherwise in cases of suspected poisoning. Some persons, whilst admitting that a pharmacist should possess that amount of acquaintance with botany which would enable him to recognise the common medical plants and distinguish their parts from those of an analogous nature usually employed for their adulteration, or for which they have been accidentally substituted, nevertheless regard as unimportant any knowledge of the internal structure of plants and their organs, and would consider the time spent upon such investigations as so much withdrawn from more practical and important studies. Such a general knowledge of plants would be, however, useless as a guide to the toxicologist in his search for the cause of disease or death in cases of suspected poisoning. A minute acquaintance with the external configuration and condition of the surface of the parts of plants, and of their internal structure, is that alone which would here be serviceable to him; and armed with such knowledge, he would frequently, by examining the contents of the stomach by the unassisted eye, or by a simple magnifier, or by the aid of a more powerful microscope, be able to trace the cause of death or disease to some small fruits or seeds, or to some other

parts of poisonous plants, and thus be in a position immediately to assign a cause for the suspicious symptoms or death; and would frequently, also, save by such a simple investigation a complicated, and perhaps unsatisfactory, chemical analysis. Among other fruits and seeds which would be thus readily distinguished by the accurate botanical observer from their external configuration and character of surface, I may mention Hemlock, Fool's Parsley, Aconite, Stavesacre, Lobelia, and Nux-vomica. A knowledge of the internal structure of the woody tissues of plants might also afford the pharmacist great assistance in cases of suspected poisoning by Savine, as the peculiar structure of Gynnospermous wood would in such instances, unless the Savine had been administered in powder, be at once evident, and lead to its detection.

A minute acquaintance with the internal structure of the various parts of plants, and of their products and secretions, will be also of the greatest service in enabling the pharmacist to detect adulterations and substitutions amongst our vegetable drugs and food substances. In a knowledge of the minute anatomy of plants and the practical use of the microscope the German and even French pharmacists are very far in advance of their English brethren, as the foreign works on pharmacology will at once render manifest. It behoves the English pharmacist to devote more time and attention to these matters, as means of detecting adulterations and substitutions, or otherwise he will not only be left behind by his foreign brethren, but also by the intelligent analysts of this country connected with the medical profession and the Excise. The officers of the latter service especially are now directing much attention to the detection of adulterations, etc., by the aid of the microscope, and I trust it will not be long before pharmacists generally follow their good example. Such men as Deane, Brady, Howard, Evans, Stoddart, and many others amongst our own body, are exceptions to the general rule, and their investigations will show how important and valuable the microscope may become in the hands of accurate observers.

At the present day much attention is properly directed to all matters connected with the health and comfort of our population, and as members of an intelligent profession, all pharmacists should be able to explain the influence of plants in regulating and maintaining the purity of the atmosphere we breathe and of the water we drink—agents upon which we are dependent for our very existence. Surely such knowledge cannot be considered unimportant and useless, for if a pharmacist desire to raise his social position, or even to maintain it, it will be absolutely necessary for him to keep ahead of the general population in all matters referring to the health of the people. One important branch of his education must not, therefore, be neglected, namely, that which has reference to plants in a state of life or action, and their influence in nature.

A knowledge of the functions comprised in the history of the life of the plant, and of its several parts or organs, will be also of great practical assistance to every pharmacist, and more especially to those engaged in the cultivation of medicinal plants. A few illustrations on this point will be of much value:—Thus he will learn, in the first place, how important is a proper supply of light to a plant, for if that be wanting, transpiration or exhalation of watery vapour from its leaves and other green parts will soon cease, and that this cessation of one function will speedily be followed by that of absorption also, in consequence of the plant becoming gorged with unremoved fluid matters. Hence the plant will become unhealthy, and unless removed from the influence of such an unfavourable condition it will ultimately die. A knowledge of this action of solar light upon vegetation is of direct importance to the pharmacist, as it teaches him not only how necessary light is to the successful cultivation of medicinal plants, but also the necessity of gathering such plants, if we would have them in their most active conditions, in dry, warm, sunny weather, as under other circumstances—that is, if collected after a succession of dull, dreary, cold, damp, or wet days—their active secretions would be so mixed up with inert unassimilated fluid matters, as sensibly to diminish their medicinal properties, and materially to increase the difficulty of making eligible and stable preparations from them.

Important, however, as the influence of solar light is upon the transpiration of plants, it would soon be found that other

changes were dependent upon its action combined with that of the atmosphere which surrounded them. Thus, without the conjoint action of these two agents, no proper formation of organic substances could take place in plants. The pharmacist would also learn that in the process of assimilation there were two series of organic compounds produced, one series having for their object the nutrition of the plants in which they were formed, and being directly concerned in their growth and development; and another series called secretions, which played no active part in the plants after their perfect formation, and which were commonly formed at a later period in the life of the plant. These facts ought to teach us how important it is not to manure plants which are used in medicine too freely, as by such a proceeding they are made to grow too luxuriantly, and become as it were fattened; while, at the same time, no increase at all events, but on the contrary, as I believe, in most instances a sensible decrease takes place in the amount of their secretions, and a corresponding diminution of their medical properties. Under any circumstances, the addition of a large quantity of unstable compounds to the juices containing the secretions we require would render such plants, as a rule, ill adapted for the production of eligible and stable preparations. When plants are grown for use, as nutritive vegetables, the opposite plan should be adopted, as our object would then be to form nutritive compounds, and not active secretions. It is very probable, however, that as our knowledge of vegetable chemistry and physiology increases—that is, when we become more perfectly acquainted with the action and uses of artificial and other manures—the medicinal properties of plants may be increased rather than diminished by their judicious use. The above remarks are simply intended to apply to the now commonly adopted plan of indiscriminate and over-manuring of medicinal plants.

There is another important practical fact which was first pointed out by me in a lecture which I delivered at the Pharmaceutical Society, in 1862, "On Plants in a State of Life," which arises from a knowledge of the later development and difference in function of the secretions and products of plants. It is this: it was well known that in the process of flowering, and more especially of fruiting, a great supply of nourishment was required; hence it was said by vegetable physiologists, that when the herbaceous parts of plants were required for medicinal uses, they should be taken before the process of flowering; the practical man, however, came forward and said, "No; take them when the flowering stage has somewhat advanced, as it is at that period that I can obtain the most active and stable preparations from them." I think we may show that the latter is correct (provided that the flowering stage has not advanced to any very great extent), as follows: In the process of flowering the only compounds that are taken up in any amount are those which are concerned in the growth and development of new tissues; no further growth, to any extent at least, can therefore take place in the vegetative organs of the plant; but the secretions, by the removal of these products, become more concentrated, and the organs in which they are produced, by being left for a longer period in connection with the plant, have time to elaborate them more perfectly.

At the period at which the lecture just alluded to was delivered much discussion had arisen as to the propriety of using the young vitally-active parts of herbaceous plants in immediate contact with the leaves, as well as the leaves themselves, in the preparation of extracts, etc.; and as the subject is of much practical importance, I must be excused for referring to it again, as follows:—Without leaves or other organs of an analogous nature, no growth to any extent can take place, or any secretions be formed in the plant. Thus the floral leaves, and the green parts of the flower itself, have a similar effect to the leaves; even the young herbaceous parts, from which the leaves and other organs arise, are also directly concerned in the formation of products and secretions. This assimilating power of the young green herbaceous parts is commonly lost sight of, but in reality the structure of these parts is essentially the same as the leaves, except that their tissues are somewhat more compact and differently arranged; hence, in proportion to amount of matter, they do not expose so large a surface to the action of air and light as leaves; and as the process of assimilation only takes place in the cells immediately below the epidermis, their power of forming products and secretions is somewhat

less intense, but the difference between the parts immediately in contact with the leaves and the leaves themselves must be very slight. Indeed, I am by no means certain but that the young herbaceous parts frequently contain quite as much, or even more, active secretions than the leaves; thus, if the latter organs be left on the stem till they have passed their active vital conditions, their secretions will have passed to a great degree into the young stalks in their passage downwards to the main stem, and hence the latter would be then probably more active than the leaves, as they would in such a case not only be assimilating organs, but also the receptacle for the products and secretions formed in the surrounding parts. The most convincing proof that I can adduce of the capability of young succulent parts to form products and secretions is in the case of Cacti, Euphorbias, etc., which have frequently no true leaves, but the plants are formed of a succulent stem or stems, from which the flowers arise; nevertheless, as is well known, and in the case of some of the Euphorbias especially, the secretions produced are of a very active nature. I might pursue this subject further, but enough has been said to show that in practice, in making preparations from herbaceous plants, we may consider the young vitally-active parts in immediate contact with the leaves as not materially differing in activity from them, and that, consequently, they may be safely as well as economically used with them.

Again, a knowledge of the influence of solar light upon the process of assimilation shows us why plants, or parts of plants, when grown in the dark, become blanched, and generally deficient in products and secretions; and the same fact explains why the secretions of plants are less perfectly or more sparingly formed in cold dull summers than in light sunny ones, and the consequent greater activity of medicinal plants in the latter seasons. The same cause also explains why plants of warmer regions than our own are commonly remarkable for the more powerful nature of their secretions; and also the reason why such plants when transported to this country and placed in our hot-houses, can never be made, in consequence principally of the diminished intensity of light to which they are then exposed, to form their peculiar secretions. We see, also, the cause why such plants as Celery, Endive, Sea Kale, etc., which, when grown under natural conditions, are rank and unwholesome from the formation of their peculiar secretions, become, when cultivated under diminished light or in darkness, useful vegetables.

All the above facts are of great interest, as they have an important bearing upon the growth of plants and fruits for the table, as well as in a medicinal and economic point of view. At present, however, much remains to be discovered before we can be said to have anything like a satisfactory explanation of the causes which influence the formation of the secretions of plants; for it is found that the same plants, when grown in different parts of Great Britain, where the climatal differences are not strikingly at variance, or even at the distance of a few miles, or in some cases a few yards, frequently vary much as regards the nature and activity of their peculiar secretions. A striking illustration of this fact is mentioned by Dr. Christison, who found that some Umbelliferous plants, as *Cicuta virosa* (Water Hemlock), and *Eranthe crocata* (Hemlock Water Dropwort), which are poisonous in most districts of England, were innocuous when grown near Edinburgh. The causes which lead to such differences are at present obscure, but the varying conditions of soil, moisture, and exposure to air under which such plants are grown, have doubtless an important influence upon their secretions. In a pharmaceutical point of view, so far as the active properties of the various medicinal preparations obtained from plants are concerned, this modification in the secretions of plants by such causes is of much interest, and would amply repay investigation, for it cannot be doubted but that each plant will only form its proper secretions when grown under those circumstances which are natural to it, and that consequently any change from such conditions will modify in a corresponding degree the properties of the plant. I cannot but believe that here we have an explanation, to some extent at least, of the cause of the varying strength of medicinal preparations obtained from plants grown in different parts of this country, or in different soils, etc.

If future experiments should demonstrate in a conclusive manner that wild plants are more active than those under cultivation, it will be necessary to ascertain what are the

conditions of heat, light, exposure, soil, moisture, etc., which are most favourable to the full development of the medicinal properties of each plant, in order that the cultivator may place them, as far as he is able, under such conditions. Many of our medicinal plants are now employed so extensively, that they could not be obtained in any proportion to the demand for them from wild localities, and hence cultivation must be resorted to to keep up the necessary supply; we would urge, therefore, upon cultivators of medicinal plants to study to place the plants they cultivate in, as nearly as can be ascertained, their natural conditions of growth, and then we have no fear that their medicinal properties will be sensibly diminished; indeed, we see little reason to doubt, but that as our knowledge of vegetable physiology and chemistry increases, when the conditions under which the different secretions of each particular plant have been thoroughly investigated, we may increase rather than diminish their active properties by proper cultivation.

The above facts have been often before alluded to by me, and I have urged upon the cultivators of medicinal plants and others the great importance of paying more attention to them; but at present, with the exception of two interesting papers by Mr. T. P. Bruce Warren, read at the Bath and Birmingham meetings of this Conference, no recent investigations have occurred; the subject, therefore, is still comparatively an open one, and one which, when thoroughly worked out, must lead to most important results.

Many facts still crowd upon me, which show how intimately the study of botany is connected with the practice of pharmacy, but I have now exhausted the time allowed for this address; and I can, therefore, only conclude with the hope that sufficient has been adduced to exhibit prominently the great advantages which must accrue to pharmacologists generally from the diligent study of botany. That the liberal and enlightened founders and subsequent promoters of the Pharmaceutical Society were fully impressed with the importance of botany as a branch of the studies of a pharmaceutical student is sufficiently proved by their having made it an important branch of their curriculum of study, and of their examinations. The success of their endeavours in this respect is already becoming evident in the increased attention which is being directed to its study amongst pharmacologists, and which a glance round this room would abundantly testify; but it is to the rising generation that we must look for the more perfect accomplishment of their efforts, and it has been with a view of forwarding so desirable an end that I have thought it advisable to make it the subject of my address as the President of the British Pharmaceutical Conference.

At the conclusion of his address the President expressed his cordial thanks, on behalf of himself and visitors from other towns, to the Local Committee, for the kind reception given to them, and for the systematic and complete arrangements which they had made for holding the Conference. The President said that they had all had an opportunity of judging how successfully one of the great features of the meeting, the Exhibition, had been carried out. He believed that Exhibition had originated with, and had been almost entirely carried out by, the Nottingham Committee. He must allude to one other matter before he concluded. They had before them the bust of one of the noblest, the most liberal, and the most unselfish of men that ever lived. It must be a great satisfaction to them—all more or less connected with the pharmaceutical profession—to know that that man was one of their own body. He was sure that all the members, especially the younger ones, would be pleased to have an opportunity of seeing the bust of the lamented Jacob Bell, and they were all much indebted to Mr. Hills for forwarding it to the Exhibition. He (the President) had enjoyed Mr. Bell's acquaintance for nearly twenty years, and he felt sure that, had he been amongst them at the present time, no one would have taken greater interest than he in the proceedings of that Conference.

Mr. CARTEIGHE (London) moved that the best thanks of the meeting be given to Professor Bentley for his able address, which had clearly demonstrated the importance of the study of botany to the pharmacist.

Mr. LEWIS (Nottingham), in seconding the motion, said that the Nottingham members would look back with pleasure to the meeting of the Conference in this town.

Mr. INCE (London) supported the motion, and referred to Professor Bentley's connection with King's College—an institution which had done so much to raise the standard of scientific education in England.

The motion was carried by acclamation.

The PRESIDENT, having gracefully acknowledged the vote of thanks, called upon Mr. Brady to read the first paper.

ON THE RESULTS OF THE MICRO-CHEMICAL EXAMINATION OF EXTRACT OF FLESH. BY H. DEANE, F.L.S., AND H. B. BRADY, F.L.S.*

HAVING found that the microscope might be used with advantage in the examination of almost any extract containing crystallisable bodies, the authors had devoted considerable time to the micro-chemical examination of samples of the so-called "Extractum carnis," of Liebig. The experiments they have performed were similar in character to those which they had previously detailed in their papers on the preparations of opium. Portions of the various extracts had been mounted for the microscope in their ordinary condition; other portions had been reduced to a syrupy consistence with hot water, placed on the glass while still warm, and allowed to stand until crystals were fully formed. To determine the relative proportion of crystalline and extractive matters, advantage had been taken of Professor Graham's process of dialysis. Observations had been made on standard specimens, prepared by the authors with cold water, and with water heated to 160° F., from English beef of the finest quality; on a specimen prepared in the Royal Pharmacy of Munich, furnished by Professor Pettenkofer; on a fair sample of the South American extract, prepared by Herr Giebert; on the extract at present imported from Australia; on that prepared by Mr. Reynolds, of Leeds, from English beef; on that supplied by Messrs. Gillon, of Leith, and on the so-called extract of meat lozenges introduced by the same firm. The authors stated that in selecting these specimens they had not been influenced by any personal considerations, as the sole object of their investigations was to determine the constituents of typical products. Many other samples of home manufacture had come under their notice, but they had not thought it necessary to report upon them. The crystalline bodies which were most readily recognised, and which might be regarded as essential constituents of well-made flesh extract, were phosphate of potash, chloride of potassium, and kreatine. The relative proportions of crystalloid and colloid bodies in some samples had been determined by the process of dialysis. The authors' specimen, prepared with cold water, yielded only about 7½ per cent. of colloids, or uncrystallisable matters, while the Australian extract yielded nearly 39 per cent. The conclusions which the authors drew from their observations were, first, that the microscope afforded a ready means of ascertaining proximately the value of extractum carnis, after due weight had been assigned to such characters as colour, taste, and odour; secondly, that the value of a sample was directly related to its crystalloids and inversely to its colloids, and that these two kinds of constituents might be separated by dialysis. The authors acknowledged the kind assistance they had received from Dr. Attfield and Mr. A. Friere-Marreco while carrying on their investigation. The paper was illustrated by numerous beautiful microscopic drawings, showing the different forms of the crystals of phosphate of potash, chloride of potassium, and kreatine, and the appearances presented by the different samples of extract examined.

Mr. STODDART (Bristol), after tendering his hearty thanks to the authors for their elaborate paper, said that he was surprised that they had not recognised lactates among the characteristic constituents of flesh extract. Lactic acid was commonly found in flesh-juice, and he had himself obtained it from the liquid excreted through the pores of the skin during perspiration. He trusted that some one would succeed in determining the distinctive characters of the extracts of buffalo, beef, and horse. (Laughter.)

Mr. DEANE (London) had noticed great differences in meat with regard to its acidity. The acidity of warm fresh meat was scarcely perceptible, but the same meat, after a little time, became distinctly acid. The amount of lactic acid in flesh-juice, therefore, appeared to be very variable.

* For want of space we can only give abstracts of the scientific papers read at the meeting.

Mr. BRADY (Newcastle-on-Tyne) reminded Mr. Stoddart that the chemistry of the prepared extract was not the chemistry of fresh meat-juice.

Mr. POOLEY (Bath) condemned the use of metallic vessels in the preparation of the extract.

Mr. REYNOLDS (Leeds) cautioned experimenters against attaching too much value to the percentage of crystalloids in the commercial extract, as these crystalloids might have an artificial origin. Referring to a statement of the authors, that ammonia or other amine was invariably evolved in a certain stage of the evaporation, he said that he had not noticed this effect, and could not regard it as one of necessary occurrence.

Mr. GILES and Mr. BROWN thought that the evolution of ammonia was more likely to result from the decomposition of an organic nitrogenous principle than from the splitting up of an ammoniacal phosphate, which had been referred to by the authors as its possible cause.

A MEMBER remarked that the investigation recorded in Messrs. Deane and Brady's admirable paper might be extended by operating on *extractum carnis* with different solvents. He could not account for the evolution of ammonia from a liquid having an acid reaction.

A vote of thanks to the authors for their valuable and suggestive paper was carried unanimously.

ON ACONITE. BY T. H. GROVES, F.C.S.

In the first part of this elaborate paper the author described the investigations he had undertaken to determine whether aconite owed any of its activity to the volatile acid body said to exist in it. The conclusion arrived at was, "that *Aconitum Napellus* does not contain a volatile acid body to which may be attributed a part of the poisonous effects of the plant." The author connected the loss of strength observed in drying aconite plants with the ready destructibility of the alkaloid aconitine, and thought it probable that this alkaloid in aconite supplied the place of the volatile acid bodies present in *Ranunculus* and *Anemone*. The preparation of *Aconitine* formed the subject of the second part of the paper. Having noticed the imperfect processes prescribed by Dr. Turnbull and the London Pharmacopœia of 1826, the improved process given in the British Pharmacopœia, and a very good one devised by MM. Liégeois and Wattot, the author explained the method he had adopted for preparing the specimens of crystallised aconitine and its salts which he contributed to the International Exhibition of 1862. This process, which is one of general application, may be thus described:—A strong tincture of aconite is prepared by macerating for about a week 5 lb. of coarsely-powdered aconite root in 1 lb. of methylated spirit, acidulated with 2½ oz. of strong hydrochloric acid. (The materials being of less value than the author's time, he simply expressed the fluid, leaving about one-sixth in the marc unrecovered.) To the tincture about half a pint of water is added, and the spirit is then distilled off. During the distillation the resin and oil gradually separate and float on the acid watery liquid which retains the basic matters. The contents of the retort are poured into a basin, and the last traces of spirit driven off. When cool, the clear liquid is separated by pipette and filter from the thick oily mass floating on it. This operation requires both time and patience, but it is advisable to do it well, and completely purgo the liquid of matters insoluble in acidulated water. To the clear liquid a slight excess of a strong solution of iodohydrargyrate of potash is added; the resulting thick creamy liquid is heated to about 100°, being stirred continually; and the concrete resinous mass which results is separated. In this way the author obtains on an average an ounce of crude iodohydrargyrate, to decompose which is the next business. The best way to do this is to dissolve it in hot methylated spirit, and add a slight excess of nitrate of silver in hot watery solution. By this means the whole of the iodine is removed. (In performing the process on a large scale, the author would treat the solution of iodohydrargyrate first with sulphide of ammonium, and then with acetate of lead.) The liquid filtered from the iodide of silver contains nitrate of mercury, nitrate of silver (in minute quantity), and nitrate of aconitine. From this the alkaloid may at once be obtained in a pure state by adding an excess of carbonate of potash, and washing two or three times with ether. But the author prefers first removing the mercury by sulphuretted hydrogen,

as it renders the washing with ether so much easier and neater. The ether evaporated or recovered by distillation leaves a residue of a pale brown colour, which is partly crystalline, partly translucent like a fused resin, and exhibits a strongly alkaline reaction. (On the average, the author obtained of this rather more than ten grains per pound of root, or, making allowance for that remaining in the marc, twelve grains per pound.) This residue is then dissolved in water with a very slight excess of nitric acid, and the resulting solution soon deposits crystals of nitrate of aconitine. About one-half of the aconitine is thus obtainable in the nitrate which crystallises more readily than the sulphate or hydrochlorate. From this nitrate the pure crystalline alkaloid may be procured by the ordinary method—precipitation by ammonia and solution in spirit. The author had found by experiments on a dog that the crystalline product possessed in a high degree the poisonous properties of aconite, and he thought it ought to supersede the present variable, and therefore dangerous preparations of root and leaf. He proposed as eligible preparations for internal use a powder composed of aconitine and sugar of milk, and a watery solution with sufficient spirit to keep it from moulding. Half a grain of the alkaloid to the ounce—about a thousandth part—would, he thought, be a convenient proportion for each preparation.

The PRESIDENT called attention to the important conclusion arrived at by Mr. Groves, that the activity of aconite was solely due to the presence of aconitine. Several pharmacologists had confidently asserted that the plant contained a volatile acid principle, but Mr. Groves's results appeared to prove that this assertion was not well founded.

Mr. GILES, in reference to some statements in the paper respecting the uncertain activity of preparations of aconite, and the products formerly sold as aconitine, said that the different effects recorded by different observers might be partly due to peculiarities of constitution. In a case that had come under his own observation, all the symptoms of poisoning were produced by half a grain of extract of belladonna. Such idiosyncrasies should be well considered by physicians who prescribed the alkaloids and other active remedies.

Mr. GROVES, while admitting the truth of Mr. Giles's remarks, said that the preparations of aconite were necessarily of indefinite strength, as different samples of the root yielded different quantities of aconitine. By employing the pure crystalline active principle in proper doses the medicinal effect of aconite might be produced with certainty and safety. He condemned the use of galenic preparations of indefinite strength.

NOTES ON IMPURITIES. BY R. S. PROCTOR.

In this paper the author described certain impurities in articles used in pharmacy which had casually come under his notice. Two samples of treacle were found to contain considerable quantities of iron. A sample of "potash water" from one of the best makers was found to be very good soda water, containing no potash. A mistake in labelling might have given rise to this substitution. Another sample was found to contain both potash and soda. Several commercial samples of spirit of nitrous ether having been examined by the Pharmacopœia tests and found wanting, further samples were obtained from two of the best makers, with the view of purchasing, if possible, a spirit of nitrous ether which would stand the Pharmacopœia tests; but, like the others, they were not found to yield any film of nitrous ether after agitation with twice their bulk of a saturated solution of chloride of calcium.

Mr. GILES said that the use of iron tanks and other vessels in the process of refining sugar would account for the presence of a certain proportion of iron in treacle.

ON THE "DRIED ALUM" OF COMMERCE. BY JOHN WATTS.

The investigations described in this paper were undertaken to ascertain whether the dried alum of commerce corresponded with the *alumen exsiccatum* of the British Pharmacopœia, and also whether there were good grounds for the author's opinion that the preparation of dried alum might be safely discontinued. The Pharmacopœia process—igniting pure potash alum till watery vapour ceased to be disengaged—seemed very simple, but unfortunately potash alum could not

now be obtained as a commercial article, and the author was actually obliged to prepare a specimen to work upon. The alum now manufactured was ammonia alum, the alkali being derived from the ammoniacal liquors of the gas-works. This ammonia alum, however, was never quite pure, as a small proportion of potash derived from natural sources was always present. Thus, according to theory, ammonia alum ought to contain 14.56 per cent. of sulphate of ammonia; but on analysing two specimens of the commercial product the author found that they contained only 11.97 and 11.23 per cent. respectively. Dried alum was now invariably made from ammonia alum, and was an article of uncertain composition. On analysing five specimens procured from different houses the author found that the proportions of water and sulphate of ammonia present varied considerably. No. 1, completely soluble in water, contained 16.35 per cent. of water and 14.07 of sulphate of ammonia. No. 2, almost insoluble, contained 38.92 per cent. of water, but no sulphate of ammonia; it consisted of basic sulphate of alumina. No. 3, partially soluble, contained 45.51 per cent. of water, and 10.57 of the ammonia salt. No. 4, only very slightly soluble, contained 37.86 per cent. of water, and 6.29 of sulphate of ammonia. No. 5, completely soluble, had 43.05 per cent. of water, and 12.57 of sulphate of ammonia. In every specimen except No. 2 a small proportion of potash was present. The author, having concluded that these differences depended on the volatility of the sulphate of ammonia, and the intensity and duration of the heat employed in the process of drying, operated on a sample of crystallised ammonia alum to ascertain the loss of ammonia when the drying was conducted with the utmost care. Analyses of portions of this sample before and after drying showed that it had lost 1.87 per cent. of sulphate of ammonia during the operation. The large proportion of water present in each of the commercial specimens of dried alum was supposed by the author to consist chiefly of moisture re-absorbed subsequent to exsiccation. Seeing that dried alum was necessarily prepared from ammonia alum, that unless great care were used in the application of heat (which should not exceed 450°), no two products would be alike, and moreover that it rapidly re-absorbed water, the author concluded that the exsiccation of alum was a profitless operation. He admitted that dried alum, being amorphous, might possibly possess advantages over the crystalline variety when applied as an escharotic to fungous ulcers; but for use in lotions and similar applications, it was certainly not required, though often prescribed. It seemed absurd to expel the water of crystallization from alum, and then to dissolve the product in water.

Mr. SUTTON (Norwich) confirmed the statements that the manufacture of potash alum had ceased, and that the dried alum was exceedingly hygroscopic. Samples of the latter, which might be quite insoluble when first prepared, would rapidly absorb water and become soluble.

Mr. DEANE thought that Mr. Watts's excellent paper had demonstrated the worthlessness of burnt alum, and trusted that this inconvenient preparation, which was sometimes soluble and sometimes insoluble, would be excluded from the *Pharmacopœia*.

Dr. ATFIELD also condemned the use of this irregular preparation, which seemed to have a variable composition between that of ordinary crystallized alum and that of sulphate of alumina.

Mr. BROUEN (London) said that the immaturity of the British *Pharmacopœia* was illustrated by the chemical formula given for alum, which represented a compound not found in commerce.

ON THE ACTIVE PRINCIPLE OF HYOCYAMUS. BY W. A. TILDEN, F.R.S.

The chemistry of henbane having been little studied, the author undertook some experiments, by which he hoped to isolate its active principle and determine its chemical characters. An attempt to prepare "hyoscyamine" from the seeds by the process adopted by Geiger, and described in Gerhardt's *Chimie Organique*, gave only equivocal results. Another attempt was made to obtain the base from the seeds by Sonnenschein's general method for the detection and elimination of organic bases, but this was also unsuccessful. The author next procured a quantity of freshly-prepared extract of the leaf. Half a pound of this extract was dissolved in

about three pints of water, and the solution, mixed with a small quantity of lime, was filtered, treated with an excess of carbonate of potash, and then agitated with about a pint of chloroform. After standing all night, the chloroform subsided as a slightly greenish oil, which was separated by a funnel, filtered into a bottle, shaken up with some water acidulated with sulphuric acid, and then the chloroform recovered. This aqueous liquid (which gave an abundant precipitate with Sonnenschein's reagent—"phospho-molybdate of sodium") was rendered alkaline with carbonate of potash, and shaken up with ether. The ethereal solution contained all the base, as was indicated by the fact that the aqueous portion, upon reacidification, no longer gave a precipitate with the phospho-molybdate. The ether, which was colourless, was then shaken up with acidulated water, and the whole distilled in a water-bath. The acid solution remaining gave an abundant yellowish precipitate with Sonnenschein's reagent; neutralized with bicarbonate of soda, a dirty white precipitate with tannin, soluble in acetic acid; a yellow flocculent precipitate with chloride of gold; a brown precipitate with solution of iodine in hydriodic acid; an orange-yellow precipitate with proto-chloride of iodine; no precipitate, however, was observable either with perchloride of platinum or with solution of corrosive sublimate. The base itself was very soluble in alcohol, ether, chloroform, and even in water. Its aqueous solution possessed a strong acrid and bitter taste, and when suffered to evaporate spontaneously over oil of vitriol, had been observed to crystallise in radiating groups of needles, though this was not always the case, and it was generally obtained as a colourless gummy mass. It had a slight odour quite different from that of the plant, and was very decidedly alkaline to test-paper. Caustic alkalies destroyed it rapidly, especially on application of heat, the solution becoming brown, while an alkaline vapour, probably ammonia, was evolved.

Mr. GROVES had endeavoured to isolate the active principle of hyocyanus some years ago, but had not obtained a body having the characters of Mr. Tilden's product. He boiled the leaves of hyoscyamus with olive-oil, and then agitated the product with hydrochloric acid and water. From this he obtained a small quantity of a liquid principle with alkaline properties, which he regarded as the active constituent of this drug.

Dr. ATFIELD thought that the different results obtained by the two processes indicated the existence of two distinct principles in henbane.

Mr. CARTEIGHE had made some experiments on henbane, which, though imperfect, had led him to believe that a solid alkaloid could be obtained from the plant.

Mr. SUTTON, Mr. DEANE, and Mr. CARTEIGHE made some remarks upon the uncertain physiological action of henbane.

ON SYRUP OF PHOSPHATE OF IRON. BY C. UMNEY, F.R.S.

The official syrup of phosphate of iron having been found to acquire a reddish-brown colour, the author made a series of experiments to ascertain the nature of this change. The action of light and air was determined by putting the syrup into dark blue and light green bottles placed in an ordinary window, and on a roof, and noting the changes which occurred in the different portions through a period of five months. It was found that the syrup filling the bottles underwent little change, while that which was exposed to the action of the air contained in the half-filled bottles assumed the objectionable reddish-brown colour, and deposited phosphate of iron. The portion of syrup which underwent the greatest alteration was that which partially filled a light green bottle. To determine whether the phosphoric acid decomposed the sugar, a syrup was prepared from these two bodies, without iron, and placed in bottles. It was found that this syrup became coloured, and that the cane sugar had been converted into grape sugar by the action of phosphoric acid. From these experiments, and others of a confirmatory character, the author drew the following conclusions: that the change of colour in syrup of phosphate of iron was chiefly due to the action of the air contained in partially filled bottles; that this change was to some extent influenced by light; that oxidation was promoted and colouration induced by the conversion of the cane sugar into grape sugar. For the better preservation of the syrup the author suggested that it should be kept in bottles of con-

venient size for use, so that it might not remain long in contact with air. He also suggested that the solution of phosphate of iron in dilute phosphoric acid should be kept, and the syrup made from it in small quantities by the addition of sugar.

Mr. STODDART regarded syrup of phosphate of iron as an anomalous preparation. The action of acids upon solution of sugar was known, yet free phosphoric acid and sugar were mingled in a preparation which was intended to have a stable character.

Mr. HEATHFIELD attributed the colouration of the syrup mainly to the presence of nitric acid in the officinal dilute phosphoric acid. By employing syrupy phosphoric acid prepared by the combustion of phosphorous, and sufficient sugar to form a dense syrup, he obtained a product which did not appear to undergo any change when kept for a long time.

Mr. BALDOCK attached much importance to the preparation of the phosphate of iron. It was easy to obtain it as a very dense precipitate, which could be readily washed without much oxidation. The method he adopted, in preparing the syrup on the large scale, was to take 10 lbs. of crystallized sulphate of iron and 15 lbs. of crystals of phosphate of soda, fuse them separately in their water of crystallization (adding a little water if necessary), and then mix them. Or the two salts might be finely powdered, mixed, and made into a paste with water. The product in either case was a pale bluish grey and very dense precipitate, containing very little perphosphate. The operation of washing this dense powder gave little trouble, and the washed salt was quickly and entirely dissolved by syrupy phosphoric acid. By preparing a solution of definite strength, the syrup of phosphate of iron was easily made by adding 8 ozs. of solution and 4 ozs. of syrupy phosphoric acid to 1 gallon of simple syrup. The excess of acid was necessary to prevent precipitation on dilution.

Mr. GILES, after thanking Messrs. Heathfield and Baldock for the valuable information they had afforded, said that the results of the author's experiments on the action of light would have been more satisfactory if he had used colourless and opaque bottles instead of green and blue ones. The chemical rays which might be expected to promote the decomposition of the syrup passed readily through dark blue glass.

Mr. RIMMINGTON corroborated Mr. Heathfield's statement respecting the frequent contamination of phosphoric acid by nitric acid. To remove this impurity, he generally heated the commercial acid with starch or sugar.

Mr. REYNOLDS said that the irregularity of the changes noticed in the syrup seemed to point to the conclusion arrived at by Mr. Heathfield, that these changes were due to some variable impurity. He could not support the recommendation to increase the density of the syrup, as he had found that insoluble matter was deposited by a dense syrup sooner than by a weaker one. As the preparation of the Pharmacopœia always assumed a reddish tint in the course of time, he thought that it might advantageously be coloured with cochineal, as "Parrish's Chemical Food" was.

Mr. DEANE agreed with Mr. Reynolds in preferring a weak syrup to a dense one.

ON VALERIANATE OF IRON. BY F. SUTTON, F.C.S.

The investigation detailed in this paper was undertaken to obtain a trustworthy process for valerianate of iron, to ascertain the characters of the salt, and to determine the tests of its purity. Following the directions of the Dublin College, the author had invariably obtained valerianate of iron as a brick-red amorphous powder, and the samples procured from various houses, with the exception of a specimen furnished by Mr. Daniel Hanbury, were similar products. The commercial samples consisted mainly of peroxide of iron, the proportions of valerianic acid present being variable, but always small. The specimen sent by Mr. Hanbury was in the form of a soft extract, smelling very strongly of valerianic acid, and of a transparent ruby colour. It agreed precisely with a specimen which the author had himself prepared some months previously. By careful drying, Mr. Hanbury's specimen was converted into transparent ruby scales, which were found to dissolve readily in alcohol, but to be quite insoluble in water. The result of a careful estimation

of iron led the author to conclude that these ruby scales consisted of the normal anhydrous ferric valerianate, or, in other words, neutral valerianate of peroxide of iron; the brick-red powder generally found in commerce was a basic salt. According to the author's experiments, the production of the basic salt seemed to depend upon the use of dilute solutions of persulphate of iron and valerianate of soda, and that of the neutral salt, on the use of concentrated solutions. The valerianate of soda used should be entirely free from carbonate or hydrate of soda, in order that the product might not be contaminated with hydrated oxide of iron. Mr. Hanbury, in a letter to the author, described the process he adopted for preparing the salt in the following words:—

"We prepare it by decomposing a strong solution of persulphate of iron by one of valerianate of soda. Upon mixing the solutions, a copious precipitate of an extractiform substance of a brick-red colour is formed, with which is mixed a considerable quantity of sulphate of soda in small crystals. The precipitate is easily washed by kneading it in distilled water until the latter almost ceases to be affected by a solution of baryta. The resulting product requires no drying beyond the pouring off, as far as possible, of the water which somewhat gradually exudes from the mass; it remains in the form of a soft extract, which becomes harder after some months. We never attempt to dry it."

The method adopted by the author for preparing the specimen in ruby scales, exhibited at the meeting of the Conference, was thus described in the paper:—

"My method is to take any convenient quantity of valerianic acid which is to be exactly saturated with a concentrated solution of carbonate of soda, heating the mixture in a water bath so as to dispel all the carbonic acid; the fluid is then suffered to cool, and into it is poured, as long as any precipitate is produced, the liquor ferri persulphas of the British Pharmacopœia—about the same quantity by measure is required of the iron solution as has been used of valerianic acid; after some little mixing with a glass rod the precipitate settles down into a semi-fluid extract, which may be repeatedly washed with distilled water by a sort of kneading process, until the sulphate of soda is entirely removed; it is then spread out as thinly as possible upon glass or porcelain plates, and suffered to dry, either by simple exposure to the air, or by a gentle heat, then chipped off and preserved in bottles. The salt so obtained is not in the slightest degree deliquescent. The best test of its purity is its complete insolubility in water, and the ease with which it dissolves in spirit of wine."

The author concluded his paper with the following easy method of determining the purity of commercial *Valerianate of Zinc*:—

"Pure valerianate of zinc dissolves readily in a dilute solution of citric or tartaric acid, without separation of the valerianic acid, as is the case when sulphuric or hydrochloric acid are used. Oxide of zinc is insoluble in dilute vegetable acids, so that, supposing a sample were tested which had been made by rubbing up valerianic acid with oxide of zinc, the specimen would remain insoluble. If acetate of zinc had been used as a substitute, this would dissolve, but it would also dissolve in water. Therefore, if a specimen is tested and found to be insoluble in water, but dissolves pretty readily in a cold weak solution of citric or tartaric acid, we may infer that the preparation is pure."

Mr. HEATHFIELD, Mr. BALDOCK, and other members, congratulated the author on the important results of his investigations, and thanked him for having brought under their notice a new and eligible preparation.

A MEMBER believed that the ordinary valerianates of iron and zinc were frequently adulterated with the oxides of those metals.

ON CHLORATE OF QUININE. BY C. R. C. TIEHBOURNE, F.C.S.

In this paper the results of an extended series of experiments upon a new medicinal agent were minutely detailed. The composition of chlorate of quinine was determined by quantitative analysis, each component being estimated, and the results were found to accord with the formula— $4(C_{20}H_{24}N_2O_3, HClO_3) \cdot 7H_2O$ (based on the modern atomic weights). The pure salt was found to crystallise in small mushroom-shaped masses, composed of filiform snowy-white

crystals. It was very soluble in spirit and in boiling water, but only sparingly soluble in cold water (1 in 78.5). Heated gently upon a spatula it melted, and after a time underwent vivid combustion. The process adopted by the author for preparing the salt was thus described:—"310 grains of chlorate of barium are dissolved in a small quantity of boiling water, 2 ounces of Howard's sulphate of quinine are mixed with about 12 ounces of hot water, at a temperature of about 90° C., in a porcelain dish. Double decomposition takes place immediately on mixing the two solutions, chlorate of quinine and sulphate of barium being formed. It is intended that so far there should be a slight excess of sulphate of quinine to ensure the precipitation of all the barium. This excess is evidenced by a slight scum, consisting of crystals of the undecomposed sulphate floating upon the surface of the liquor. The dish is then transferred to the lamp, and precipitated carbonate of barium added, whilst stirring, and in small quantities, until the last trace of sulphate is decomposed, and the crystals are replaced by a fine oily pellicle. This simple index serves to point out a state of absolute purity as regards the liquor, providing that the salts used are pure, *i.e.*, it will be found to contain neither sulphuric acid nor barium. The mother-liquor evaporated over a water-bath yields a further crop of crystals. The crystals should be air-dried, or dried at a gentle heat." Chlorate of quinine was originally made by the author at the request of Dr. Lyons for some experiments performed in Dublin, connected with two or three cases of "Black Death." It has since been employed by that gentleman with great success as a febrifuge.

The Second Sitting commenced at half-past ten on Wednesday morning, August 23. The reading and discussion of Mr. Ince's essay on Pharmaceutical Ethics formed the business of the day, and proved sufficiently attractive to bring together the largest number of members that has yet attended a sitting of the conference. The essay, which we print without abridgement, was gracefully read by the author, and the attentive listeners evinced their approval of his tenets and counsels by frequent bursts of applause.

PHARMACEUTICAL ETHICS.

BY MR. JOSEPH INCE, ASSOCIATE OF KING'S COLLEGE, LONDON.

"*Ethics*. The doctrines of morality, or social manners, the science of moral philosophy, which teaches men their duty and the reasons of it; a system of moral principles and rules for regulating the actions and manners of men in society."—*Caird*.

Certain ethical practices which result in social virtues are common to humanity—such are prudence, diligence, punctuality, honesty, sobriety, with other kindred excellences. It would upset the moral government of the world to live without them.

Those who would go to the root of this subject have only to turn to the pages of Aristotle's "*Ethics*," that marvellous book which has for centuries moulded the world's thought; that book which consciously or unconsciously has acted on the mind of every man in this Association—that true book, for it is one before which the profoundest scholar bows with reverence, and one which may form the never-wearying delight of the humblest apprentice in Nottingham.

It is assumed at once that the pharmacist knows and practises these true ethical principles: it is taken for granted that he, neither more nor less than those around him, must regulate his conduct by the observance of accepted ethical laws; and, therefore, while thanking many in this Conference, whose advice has most liberally branched out in that direction, I am compelled to dismiss this section of the subject altogether, and I must sum it up in an old Latin motto which has been kindly forwarded by my valued friend, Mr. William Huskisson: "*Pietas, scientia, temperantia, vigilantia, et studium assiduum ornant pharmacopœum.*"

But while there are ethics which concern humanity in general, there are others which belong specially to pharmacy. I confess I have felt no small difficulty in constructing the framework of this essay. There is a great danger of crowding the main theme with details, useful and important in themselves, but relatively of minor interest.

I have preferred assigning to these a stated place, so as to give connection to the thought, but leaving them with little, or even with no description; and I have done this of set

purpose, in order that a few grand ethical principles which materially concern us should be prominently brought forward.

Let me introduce the subject by some remarks on—

THE ETHICS OF THE SHOP.

Pharmacy is a trade. When a man buys goods at one price to sell them at another, gaining the advantage of the difference in tariff, being further influenced by the known law of supply and demand, he is engaged in trade. When he buys in undivided bulk, to sell again in undivided bulk, he is a merchant, but still engaged in trade. When he purchases in undivided bulk to vend in large though in divided bulk, he is a wholesale tradesman. When he buys articles in divided bulk, to sell again in small divided bulk, he is a retail tradesman; nor does it make the slightest difference whether he sells hats or Turkey rhubarb, nor whether the seller of the rhubarb be Sir Humphry Davy.

The artist, on the other hand, is a professional man. One painter buys so many feet of canvas, together with so much paint; he places possibly upon that canvas something which may not increase its value. A second buys the same amount of canvas, inch by inch, on which he puts the same amount of colour, ounce for ounce, and the result may be "*The Immaculate Conception*."

He places on the canvas that which he cannot buy—God gave it him, and without any phrase of poetry he exercises the gift divine. Neither is the true artist influenced by the necessities of competition, nor by the trade fluctuation arising from supply and demand.

A hundred artists, more or less, would not alter his position; a hundred paintings on the same subject would not detract from the merit of his own. Its value is intrinsic, and not relative. But the pharmacist buys his stock, whether of drugs, chemicals, or sundries, in order to sell again—he is a tradesman.

But other influences are at work to modify the general fact—the awakening claims of universal education, the long, unfaltering teaching of our own Society, the actual pressure from without. Then there is the influence of locality: the West End customer *will* have more than shop dexterity, and in my own neighbourhood the mere tradesman would find himself gazetted.

There is the influence of individual character. The master, fortunately for himself and those around him, has higher than trade instincts, from which circumstance his trade assumes more or less a strictly professional character; but it no more ceases to be a trade than the orchid, which counterfeits so strangely shapes of natural beauty, ceases to be a plant.

Never forgetting the essentially trade nature which belongs to pharmacy, we at once come to the first ethical rule of the pharmacist, namely, the necessity for the absolutely genuine character of his drugs. No drug or remedy should be admitted into his shop other than that which, in case of dangerous illness, he would not hesitate to supply to the inmates of his own family circle. He cannot be expected to keep the whole range of *Materia Medica*, nor is he to be blamed for applying for eclectic remedies elsewhere. This is an affair of means and circumstances; but in no case should any trade casuistry induce him to lower the standard of excellence of whatever he may possess.

The pharmacist who bears this rigidly in mind will be in no danger of degrading himself by the adoption of low and ruinous prices. Whoever has committed this transparent trade mistake must not afterwards blame the public for exacting the continuance of a state of things to which he has himself voluntarily stooped. On this topic I have great pleasure in giving you the opinion of your excellent treasurer, Mr. Brady:—"The principle which ought to guide the pharmacist in the regulation of his charges is, that remuneration should increase in proportion as the class of article makes greater demand on the knowledge obtained by his professional education. If he sells articles dealt in by other classes of tradesmen, he must submit to the same rate of profit. In drugs proper, which require an educated judgment, power of testing, and the like, he is entitled to a much higher rate; whilst in all matters of dispensing, his charges should be professional in their character, and not calculated on the cost of employed materials at all. We cannot materially increase the quantity of medicines sold by reducing the price; hence, any of us endeavouring by low charges to

increase his business, must recollect that he does it to the direct injury of the body, in reducing by so much the amount of money that might accrue from its legitimate practice. In large towns the responsibility of prices charged rests with one or two leading men, and if they are true to their professional instincts, the calling can scarcely fail to prosper."

I agree with the above, and I may add that the pharmacist saves himself an immensity of trouble, and will most probably prolong his days, if he will once have the courage to adopt one uniform fixed price, else he is subjected to continual petty annoyance. Having determined to be the master of his own business, he will be content to abide by his own regulations, and not on the one hand place himself at the mercy of the competing pharmacist who trims his sail to every wind that blows, or, on the other, to the caprice of the customer, who not always truthfully asserts that he has obtained articles of definite commercial value at a starvation price.

Not only his regard to self-respect, but to his trade interest, will be his guide to a third ethical observance, viz., to supply the public with the precise articles for which they ask. This point strikes me not so much as a question in ethics as in a purely business light; but I have been requested to bring it forward, and I am bound to do so.

The rule of every well-regulated establishment is to supply faithfully and implicitly whatever, in the whole range of pharmacy, a customer may require—to obtain it if not in stock, whether English or foreign, and to spare no pains that it shall be the identical thing desired.

To do otherwise seems to me not to warrant so fine a phrase as a trade error, but a pure shop mistake. Does the customer want liquor bismuthi, Schacht, he is supplied from Clifton; does he send for Brown's chlorodyne, he receives that made by Mr. Davenport; if quinine be ordered, salicine must not be substituted; and so with the list of similar preparations, whether demanded as a retail order, or as forming an ingredient in a physician's recipe. This course of action is due, not to any particular keen sense of honour, but to trade expediency, precisely as a wise fisherman spreads a well-made net in order that the fish should not slip through. Any house in town or country adopting such a principle must and does gain a reputation which infinitely counterbalances the small extra remuneration to be made out of fictitious articles. Confidence brings trade, and trade puts money in the till—a more practical result than might have been anticipated from the study of pharmaceutical ethics.

This subject may have been proposed in consequence of some of its details not having been clearly grasped. On the one hand, there is a great waste of misapplied ingenuity in the constant attempt to produce colourable imitations of preparations, secret or otherwise, which have gained reputation for some particular chemist. Against this there is no human law; but the moral law, which is the law of God, says such practices are fraudulent, and beneath the dignity of every upright man, and they betray a paucity of inventive power; and it is, moreover, certain that the same skill might find more creditable as well as more remunerative employment.

Still some pharmacutists are in bondage to a groundless fear; they hesitate, under a strained sense of honour, to enter upon what they think preoccupied, and therefore forbidden, ground. "Why," writes Mr. Giles, "should there be any speciality in pharmaceutical production? The same laws will protect an invention in pharmacy as in mechanics, and when the law professes to deal with the matter, it is a question whether any other protection is needed. You may say ethics shall do what the law does not, and so it should in cases too refined for the law to deal with; but here the law does operate." From the foregoing, it is clear that while no one is justified in the fraudulent imitation of a patent right, either in or out of the pale of pharmacy, yet no pharmacist can claim the exclusive manufacture of any special article in perpetuity, simply because a particular mode of working originally suggested itself to his mind. There is no law in trade or ethics to prevent a man making liquor opii to the best of his ability, any more than in the case of morphia and meconic acid. The most scrupulous and conscientious chemist may get quinine and cinchonine from bark. What casuistry shall assign an arbitrary limit forbidding him to make a liquor? The whole world may make magnesia, light and heavy, calcined or carbonate, although Battley and Howard and Henry have been beforehand in the field. Let

not the pharmacist shrink from the lawful use of the experience and labours of the past; which is no reason why he should sink into a mere copyist, and should not, like Columbus, sail out of the beaten track in search of land not hitherto discovered.

There is a major ethical consideration that can only be treated in a minor key—perfect civility to, and careful attention to the smallest wants of the poorest customer—a civility that should be expressed by words and manner. The ethics of civility to rich customers need scarcely be discussed: in that case, for ethics, read advantage.

Our American brethren have taken the lead in drawing up a regular Code of Ethics. You will find the document in the "Pharmaceutical Journal," Vol. XII. p. 369.

They have also, I think, been most successful in giving directions about the last topic I have to mention in connection with shop ethics—the mutual relation between the master and the assistant.

For general rules I refer you to a paper republished in our Journal, called the "Pharmaceutist as a Merchant" (vol. vi. p. 655, second series). The idea is admirable, and the literary execution quite equal to the design.

Mr. Frederick Stearns, the author, seems to have steered most successfully between the Scylla of the high and dry, and the Charybdis of the goody-good.

I refer you also to some excellent rules published at the end of Parrish's "Practical Pharmacy;" it contains one difficult proposition, p. 676:—

"Second General Regulation of the Store.—During business hours all hands must be on their feet."

Rule XIII. is beyond our present standard. "Every apprentice will be expected to become a graduate of the College of Pharmacy, and will be furnished with tickets of the College, and every opportunity for availing himself of the honour of the degree of that institution." I do not feel called upon to dilate upon this question. There is such a wide difference in individual character, that special rules seem to be impossible. After all, we shall scarcely get further than the inspired direction, "he that ruleth with diligence."* One point I am compelled to notice, that ethics concern the assistant quite as much as they do the master. I have no intention of adding to the already hard position of the former by harsh remarks, but I say deliberately that neither our current literature, nor the general tone of sentiment expressed in private, bears sufficient trace of the recognition that a code of ethics extends beyond the master. Let the assistant feel that he has a part to play, just as difficult and just as important as his employer; that on his side he must exercise consideration and adopt the high tone of feeling which characterises the English gentleman, and he will do more to render pharmacy endurable, and to promote its social welfare, than whole reams of essays written on the subject. It is painful to recollect that those identical assistants who complain the most bitterly about long hours, close confinement, and other ills incident to pharmacy, are sometimes, when once in business on their own account, the very men to perpetuate and to extend the evil, and practically to rivet another link to that chain with which we are darkly bound. Solely for this reason, I have had no faith in the efforts that have been made occasionally with regard to early closing. The ethics have been invariably on one side. Once the king of animals was asked his opinion on a work of art. The painting represented a man smiling and self-confident, who, with the most perfect equanimity, was slaying the noble beast.

"Wait till I paint," said the lion.

As matters stand, masters are to shut up, and assistants to improve their minds. I have never seen my way out of this question (nor has any one else); yet I believe that in an establishment where there are two or more assistants, if they

* It is constantly overlooked that both master and man are overruled by an exacting public, and the public by an equally exacting master—the habits and customs of society.

Young men, while resisting the orders and regulations of their employers, are apt to overlook the circumstance, that the regulations have been deliberately and carefully framed to meet the exigencies of business long before they sold their labour for a salary; hence the antagonism between master and man, and the shipwreck of sound morality.

Young men complain of the little time the business affords for reading: "where there is a will there is a way;" let them employ that little time in reading wholesome standard works of religion, morality, and science, and the standard of ethics would soon be raised above petty considerations arising out of the details of business.—Note contributed by Mr. Deane.

would calmly set to work to see how far earlier hours could be adopted without injuring existing business; if, in so doing, they on their part would carefully weigh the master's interest, and be as ethical towards him as they wish him to be towards them; and if, instead of calling him hard names and making excited speeches at a London tavern, they would bear in mind that he is quite as much interested as they; I guarantee that he would be found a willing listener, and there would then be the first and only fair chance of which I know, of both being set at liberty at more rational hours than they are at present.

Before leaving the shop altogether, may I press upon your consideration the desirability of calling it "a Pharmacy?" The word is English, not fanciful; it is used in the same sense throughout France and Belgium, is highly expressive, and is on all grounds to be recommended.

SOCIAL ETHICS.

The behaviour of the Pharmacist with regard to those in the same line of business as himself.

Strictly under this head is a special duty in connection with the choice of an apprentice, and I must again give you Mr. Brady's views. "The recent tendency amongst all professional bodies to look more closely to the school education of those aspiring to take place in their ranks is a most important consideration to us. It is true that the Pharmaceutical Society has its classical examination, but it is a matter in which every individual pharmacist owes a duty to his neighbour. The present indiscriminate mode of taking apprentices and pupils saps the very foundation of the professional superstructure we desire to raise. If we consistently declined to take pupils below a certain age—made Virgil and Euclid our touchstones, and thereby left to pursue their proper avocations the half-educated shop-boys who offer themselves to us, and too often are accepted, we should soon rid ourselves of one great cause of the multitude of third-rate chemists' shops which are established round us, and do so much injury to the legitimate pharmacist, compelling him to add all sorts of articles to his stock because he cannot make a living out of his proper calling. Parliament may, perhaps, in its wisdom, some time give compulsory powers tending to this end; but meanwhile it is a matter in which we can, if we will, help ourselves and each other."

Let me reverse the picture, and insist on the strict ethical duty we on our side owe to the apprentice. We expect a fair amount of education and general respectability, and yet it is well known that there is an increasing habit prevailing in large establishments of refusing apprentices altogether.

They are driven, therefore, to houses of lesser standing, where both the premium and the cheap services are a consideration.

What should we do in pharmacy with regard to the future training of the apprentice? I have asked a question which I cannot answer, and I leave it for more experienced pharmacists to decide.

Mr. Deane's opinion is as follows:—"There is much to be said on both sides of this difficult question. The experience of the Board of Examiners of the Pharmaceutical Society is that at least two-thirds of those who go up for the classical examination are very imperfectly educated both as regards Latin and the first rules of arithmetic as far as vulgar fractions. Yet they are not necessarily deficient. It is their misfortune, perhaps, that their friends have not been able to extend their education, and at the same time reserve a small fee to give with the boy as an apprentice. This class generally go to small shops, where they probably learn to be more industrious than scientific, and many of them ultimately make good, active, business-like assistants. The more educated few mostly have friends who can pay a fee of £200 or £300, and these get into houses of higher reputation; their advantages are more supposed than real, for the knowledge only to be acquired by the routine drudgery of the business is likely to be despised. The really useful men of this more educated class are very few, and they either speedily enter into business for themselves, or, being dissatisfied with too small a remuneration, enter on more profitable and congenial occupations."

Besides this general duty to our neighbour, there is the law of mutual accommodation. As regards the country, I should be sorry to express any opinion, but I am afraid that the most

lenient and rose-water observer would allow that some improvement might be made in this particular in what is called the metropolis. I have been ashamed of things that have come before my notice, and in my own person I have had my share in breaking the system of non-accommodation down.

The law of mutual accommodation leads also to the refusal by remark or otherwise, to take advantage of any mistake that may have occurred elsewhere. Those who have most business to transact will be the least likely to sin in this particular: they best will know that it is a standing wonder, considering the multiplicity of the engagements of the druggist, that so few mistakes should happen; they also will know best that the most vigilant care, the highest exercise of skill, the aid of the most willing and accomplished assistants, cannot in all cases provide immunity from accident. But there are a crowd of minor instances, palpable to the pharmacist, though inexplicable to the customer, where there is no mistake whatever. A few words of sensible explanation will clear the difficulty, and confidence be restored. May I ask you, when such a complaint is brought against a brother chemist, not to be too mysterious on the grand occasion, and leave suspected what you dare not hint?—for should the true nature of the case transpire, the customer will not easily forget the circumstance, and your most effective attitudes will be carefully reproduced with comic exaggeration before many a domestic audience.

There is a point which would suggest itself to few writers, but it is one with which I have been personally thrown in contact. Many excellent pharmacists are exceedingly fond, on the slightest provocation, of perishing at the stake: their principles are so rigid, that nothing short of Smithfield is equal to the most trivial occasion. There are floating about certain foolish formulae, chiefly of French and German extraction, which from time to time find their way to distressed dispensers. The originals may be found in antique English works, and in that disgrace to modern pharmacy, the Paris Codex of 1837. I once had piles of such recipes in my possession, amounting to several folio manuscript volumes, which it was the wisdom of a former age to copy, as it would have been the folly of this to keep. When these outrageous formulae, with their multitudinous ingredients, come to be dispensed, what is the duty of the pharmacist? I say he has no duty to perform; he must arrange as best he may between the customer and himself. If the handwriting be to him a mystery, and he has no knowledge of the main ingredients, let him say so honestly, but in a manner that will in no way reflect upon his personal capacity as a competent dispenser.

There is no call for the martyr spirit, or for an overstrained high notion of strict pharmacy; and if a brother has ventured on a task which he himself was unwilling to undertake, let him not be too virtuously indignant should he chance to find that some utterly useless ingredient has been misunderstood; and if a dried viper more or less has been wanting in the precious medley, let him reflect *humanum est errare*, and by a shade of pleasantry, or a grain of tact, let him both smile away the discrepancy of his own preparation, as well as screen the reputation of a fellow-worker, who was doubtless profoundly inconvenienced as to the best method of proceeding.

The law of accommodation runs into another subject, the possibility by mutual concession of the establishment of an universal tariff. The idea is grand, most profoundly ethical, and theoretically a great boon. I believe it myself to be impossible, and practically most undesirable. I am aware that such a system is successfully carried out abroad, for definite reasons not applicable to ourselves, and into which I cannot enter, as I mean to stick to English Pharmacy. I am aware also that an approximate tariff has been attempted by some London houses, but they happened to have similar trade instincts, and were not altogether unequal in reputation. I have further been informed that the plan has been tried in Scotland, though perhaps the less we say about that the better.

Allowing all this, certain facts remain—

1. The varying estimation of the money value different men place on their own skill and exertions.

2. There is the great abstract truth that the cost of producing and supplying power varies according to geographical and local circumstances, of which we, as pharmacists, have a well-known instance in the price of coal. Let three

manufacturers of equal ability and care attempt to work a still. The one at Nottingham will surpass the most economical arrangements of his London brother, if, indeed, the latter be not altogether extinguished on learning how little Newcastle gives for coals.

This is the very principle of manufacturing industry. Certain counties are noted for special branches of commercial enterprise, not by accident, but because resident men of genius have turned natural local capabilities into practical advantage.

Now, as the cost of production must necessarily vary, so also must the cost of the thing produced. This variation is not limited to extensive commerce, but it runs through an infinity of minute particulars, and the truth of the general fact will become more apparent the more it is studied in detail.

With regard to the variation in the cost of supplying power, it is absolutely regulated by local circumstances. There is not a single large pharmaceutical establishment in town or country that cannot supply some one particular article more advantageously than its neighbours.

3. In England there is an intrinsic as well as a commercial difference in the value of the preparations offered by different pharmacutists. One man builds a laboratory and spends time and money, to which he adds whatever skill he may possess in selecting the best form of apparatus for making extracts; he gets a sample of *Conium maculatum*, strips and rejects the stalk, presses out the juice from the flowers and leaves, and thus obtains an exquisite, though, as far as amount goes, a very unproductive article.

Another writes an order to some cheap export wholesale, buys extract of hemlock ready made, and sells at a lower price than that at which the first could make it: both preparations bear the same label, but both are surely not to be included in one universal tariff. I prefer, however, simple and every-day illustrations. Take powdered cuttle-fish as an example. A few manufacturers reject the whole of the outside hard shell, using only the inner soft interior substance. The product is light, soft, and delicate to the touch, and white. On one unfortunate occasion I was compelled to order a few pounds ready made; it was yellowish and heavy; it was likewise—sent back. A second time the buying experiment was repeated from necessity. The powder forwarded was white, but heavy and flinty to the touch, evidently the whole cuttle-fish bone finely ground. These three specimens all bear the same label, are all sent out as powdered cuttle-fish; are they on any principle of ethics to be retailed at the same price? The first sample is worth twice the third, and three times the second sample.

I, therefore, as a practical pharmacist who has to get his living, refuse at once and utterly to join in the universal tariff.

4. In England there are diametrically opposite modes of trade, influenced, often determined by locality. One man, in the roar of the full tide of a great thoroughfare, has a rapid retail and comparatively little on his books; another (and we suppose them equal) lives in the extreme dreary grandeur of the squares. One turns his money over perhaps four times a year, the other will not receive more than a fourth of his income during the current year. Are those two men to charge alike? Can they, I put it to your common sense, adopt one universal tariff?

5. A pharmacist, wishing that his expenditure should not exceed his income, goes of his own accord into a cheap neighbourhood. He there gets a good large house, with space and much convenience, at a very moderate rate. He sells accordingly—his own immediate neighbourhood requires an approximate profit. Another pharmacist, for business purposes, takes an expensive house, where his taxes are about equal to the other's rent. His own immediate neighbourhood expects, and practically insists on a certain higher price. Are these two men to sell at the same rate? In the first case, too high a price would ensure rejection, and in the second, too low a price would accomplish the same result.

Until we all stand together on one educational basis, and are prepared to make things according to one recognised standard (which we never shall); until we can equalise our own social position, our rents and taxes, and likewise equalise the pecuniary position of our customers; and until we are further, to some extent, protected in our trade rights, there can be no universal tariff.

MEDICAL ETHICS.

The behaviour of the Pharmaceutist with regard to the Medical Profession.

Thanks to the educational pressure from without, added to which is the sense of personal responsibility, the pharmacist is daily ceasing to be the mere vendor of his drugs; unconsciously, by recognising the necessity of thoroughly understanding the nature and properties of remedial agents, he is working out the ethics of his trade. "The maintenance of the public health" (I condense from Mr. Howden) "requires the service of three separate offices. 1. The sanitary office, which enforces the observation of natural laws. 2. The physician's office, which investigates the nature of disease and studies the method of subduing it. 3. The pharmaceutical office, which consists in the skilful selection and preparation of remedies, and their direct application according to the physician's method. By virtue, therefore, of his own position, and his mutual relation with at least this second health officer, the pharmacist cannot worthily discharge his duty unless, by deliberate cultivation, he has made himself the fit companion and seconder of the physician."

It has been stated that the medical profession look with a jealous eye on the intellectual advance of the modern pharmacist. This is directly contrary to my own experience, and I believe it to be sheer nonsense. Why a professional man should tremble because his directions are likely to be understood and properly carried out is beyond my feeble logic to explain. The one least likely to interfere with him in a professional career is the man who knows most of the varied action and the strength of drugs, and the therapeutic value of remedial agents. Such a pharmacist may be too nervous, but he will never be too rash; and the physician may rest in perfect confidence that the educated, intelligent dispenser will be the last to rush in where angels fear to tread.

I cannot conceal the fact that, in some communications which have reached me, the question of the mutual bearing, or rather of the boundary-line that marks off the medical man and the pharmacist, has not been fairly stated. Either under pressure of a felt grievance or from limited observation, strictures have been passed on the profession which are scarcely to be justified, and the matter has been argued too exclusively from our own point of view.

Reasoning from the broad abstract theory, it is better for the surgeon to confine himself entirely to professional practice; but when we descend into ordinary life, there does not seem to be any valid reason why he should not be (if so he chooses) his own dispenser. This neither includes nor justifies the establishment on his part of an open retail, a proceeding which exacts its own Nemesis. The man degrades the shop, and the shop degrades the man. What confidence can the patient feel in an adviser who has so little in himself?

But that a surgeon should be debarred from compounding his own remedies is unfair to him, and would often be unjust to others. The plan may have been dictated from motives of dispatch; in hundreds of outlying districts, from necessity; nor let it be forgotten that it may have been suggested also from the desire to have excellent and first-class preparations. Nor can I share the opinion that the private dispensary is a term synonymous with negligent dispensing and cheaply-selected drugs. I am personally acquainted with some establishments which are models of what in pharmacy we might be content to imitate. The evil (if such it be) will in time work out its own remedy; for just in proportion as the recognised open pharmacy assumes a higher standing, and offers more professional facilities, will the private dispensary be felt by the proprietor to be a thing irksome and unnecessary, and, following the law of all progression, it will eventually disappear. But, on the other hand, there is a wretched practice which, wherever it exists, must stifle the ethics of the profession and the trade. I allude to those disreputable and most unprofitable compacts, where, under the guise of a percentage, or an accommodated tariff, or any other occult arrangement, the pharmacist dispenses for the surgeon, and is robbed of the profit of his labour.

From my very heart I reprobate a system, the discovery of which is always a source of anxiety to the surgeon, from its unprofessional nature, and which, as far as the pharmacist is concerned, is the introduction of an unhealthy and under-

handed trade, miserably unremunerative, and too often a late-hour slavery, where there is not even self-respect with which to gild the fetters.

There can be no true companionship where there is no esteem; deduct the element of mutual respect and honourable relationship between the medical profession, and pharmacy is at an end. But whose the fault? For should the pharmacist fail to be the helper and fit companion of the physician, he has not rightly understood either the dignity of his calling or its moral responsibility. At first, this dread feeling of responsibility hangs over him like the sword of Damocles, but with the fear comes also a sense of honour, the very inspiration of all that is high and excellent.

The true pharmacist will always be the helper, for it is his to know the mechanism of the healing art, to develop new remedial agencies, to enter upon untried regions of experiment, to utilize the dreams of theory, and to bid science wait on the wants of daily life. In all these things the true physician will gladly be instructed, nor will he refuse advice nor withhold his friendship from one who, though working in a humbler sphere, is yet able to enlarge the basis as well as to guide the exercise of his professional skill.

So between these two men grows up a thorough sensible understanding, founded on personal advantage, deepened by common sympathy, and cemented by mutual respect. Let us rejoice that this is the bare statement of every-day experience, and not mere elegant writing.

Long may the profession and the trade work in perfect harmony together—their ethics are the same.

ETHICS OF PUBLIC LIFE.

The behaviour of the Pharmacist as a Member of his Society.

Fortunately for most of us, we have at least one interest other than the business in which we are engaged, and that is the society to which we may happen to belong. A society is a great foe to rust, to mental and moral stagnation. I hardly think the man acts wisely who never leaves his counter, nor do I fall into the popular error of considering him an eminently practical business man. Why should he be immured for thirty years behind a section of mahogany only to have *hic jacet* sculptured upon his tombstone when he is finally immured elsewhere?

The very organization of a society, with its wider and more generous impulses, changes the grey colour of his life, while it presents solid pecuniary advantages quite irrespective of more ethical considerations. As a member of society, he is bound, when convenient, to give at least some personal attendance; nor can he pass through a year without encountering some subject on which he can furnish useful information. He is not bound to divulge any mere business secret, on which subject I need say nothing, as I have elsewhere said so much: still less on its part is any society justified in dragging into pseudo-learned discussion trade technicalities of manufacture which were determined more by the exigencies of the till than the formulae of the Pharmacopœia. But besides the personal gathering together of the members (in itself an unspeakable advantage), there are various scientific journals, some pharmaceutical, some more strictly chemical, some botanical, and in our day many more or less connected with our own pursuits. It is the strict ethical duty of a pharmacist occasionally to contribute to some one of these. If, like the Master of Ravenswood, he bides his time, he can without question furnish something that will promote his own interest, if only by way of reputation, as well as aid the general advance of science.

Now, just as it is a capital mistake to consider that ethics concern masters only, and not assistants, so also is it another to consider that ethics apply simply to the writer while an editor is exempt.

I am not going to plunge into the troubled waters of the periodical press, but I cannot refrain from stating that there is one ethical obligation on the part of an editor which is of vital importance: he should, as far as possible, bring himself into contact with, and become the personal friend of his contributors, and should sometimes write, not from his office desk, but from his own arm-chair.

The chiefs of general literature are proudly conspicuous for their true ethical behaviour; the warmest greeting, the heartiest shake of the hand, and the most cordial invitation

come from the London editor, while who does not know that many a journal has been created into a sound commercial speculation, not only by the genius, but by the contagious affability of its respective editor?

One thing more—an editor should pay special attention to his young contributors. A practised eye can tell about how much a communication may be worth; if it has good stuff in it, tell the writer so, and he will nerve his full strength to surpass his former effort. There is a wonderful passage in Ruskin on this point. I cannot find the reference, but I believe it to be in the first critique on the paintings of the Royal Academy. I have also totally forgotten the wording, but I can convey the sense of the passage in my own weaker phraseology.

Praise the young man whose hopes are yet but hopes, and whose aspirations are as dreamy and uncertain as the cloud drifted before the wind. A few words of kindness may give a purpose to his mere imaginings, and may stimulate him to high endeavour. Praise the young man; for when once success has crowned his efforts, and the laurel wreath has entwined his brow, you may praise inch thick, and he will simply ponder in his mind how much or how little your praise is worth.

PERSONAL ETHICS.

The Behaviour of a Pharmacist as an Individual.

Let us bask for a few moments in the gleam of sunshine which this subject offers, and let this section be what a learned divine has termed an Eirenicon. Should any, therefore, have been offended that I have uniformly called pharmacy a trade, I here make amends by allowing them to be as professional as they choose. In the first place, a man should cultivate a love for his own business—its exercise should be to him a source of pleasure, and its various occupations should contribute to his happiness. In other words he should put his heart into the handle of the trowel. With some men this is natural—thrice happy is their lot; others must acquire the gift, for the heavy discontented spirit is the most sapping of all malign influences. Go to Haarlem and see how the careful florists get their roses out of manure and sand; a flower all beauty from so strange a soil; and then go home, and though the prospect be not always cheery, set a bold face on it, have a courageous heart, get to like your occupation, and you may beat the Dutchman yet.

Let me respectfully suggest that this love of your own business need not place you at any extreme angle from the interests of other people. It is a just reproach against those engaged in pharmacy that they seem to care exclusively for their own concerns. Surely under the benign influence of this association such a charge will vanish.

Now, the love of business in our own case involves the love of study, and this is the strictly professional part of our character. Of that study which concerns our own immediate necessities, such as the laws of chemistry, the knowledge of plants, the range of *Materia Medica*, I say nothing, as the subject is so frequently brought before you that I have taken it for granted. I confess I have a strong leaning to that class of mind which goes beyond this, and loves literature and learning for their own sakes. Nothing in my own career has more brightened toil, and lessened the irksomeness of manual labour than the recollections of a classical education. I know I shall be charged with affectation—that I cannot help.

When I first entered business, never having been apprentice, I was at the mature age of twenty-one. I loathed it in every fibre of my existence. In those first dark commencing years, no words can express the solace to my mind of many a splendid passage from old Roman prose and verse, and many a strophe and antistrophe from the Greek. The pleasure is as vivid now as it was fifteen years ago. You exceedingly practical men who will read this at your own fireside, and pronounce it rubbish, try it in your own experience. I am so far behind the age as to believe at the present moment that there is no finer poetry in existence than that contained in the four books of the *Odes of Horace*. You recollect where, in bidding farewell to Virgil, he addresses the ship bound with the poet for Athens, as if it were a living thing, and implores it to bring back his friend in safety (*Od. lib. i. 3. 5*):—

"Navis quæ tibi creditum
Debes Virgilium, sinibus Atticis
Reddas incolumem, precor;
Et serves animæ dimidium meæ."

Or shall I remind you of the exquisite lines in praise of Augustus? In an age gross in its tyranny over the poor, and fulsome in its laudations of the rich, Horace simply says that Nature herself seemed to rejoice at the presence of the Emperor (Od. iv. 5. 5):—

"Lucem redde tunc, Dux bono, patriæ:
Instar Voris enim vultus ubi tuus
Adfulsit populo, gratior it dies
Et soles melius nitent."

So, like the brook, we might go on for ever, but a shade passes this way—the figure of a man whose hair is iron-grey, in face and dress and general aspect not unlike the Nelson portrait, and he is ten years older than his age. That was my father—some among you knew him. He was brought up at Witton, where he had a wretched education, if that might be dignified with such a name which had to be all unlearned. He got a place at Chester, which was as wretched as his schooling; from thence by a bold flight he went to London, where his prospects culminated in a hole situated somewhere in the Barbican. None ever entered upon pharmacy or education under more repulsive circumstances. But fortune grew tired of frowning, and placed him at once and for his life under the guardian wings of a classic phoenix, supposed to be the patron bird of the Hon. Robert Boyle, but which in truth was fashioned by a modern artist years after that distinguished philosopher was gathered to his tomb. He was the type of the man ethical. He loved his business with an unaffected passion—he deliberately preferred it to any other walk in life; yet every successive year he loved books more and more.

First, he was ashamed of his scanty stock of Latin, and held it a sort of dishonesty to know only set passages of that dreary compilation then in use in Bloomsbury-square. Night after night for months did he hammer at his task, until he ended by being a fair reader of average Latin prose.

He joined the Westminster Book Society; the members met at each other's houses, and proposed works of history, travel, biography, and general literature. From that date no Oxford student was a more constant reader; and when in due time more liberal circumstances allowed him a wider range, he added another ethical practice of sacred origin, he was given to hospitality, at some periods of the year keeping literally open house.

Fights there were—moral, not physical—for those were the days of O'Connell and Sir Robert Peel, the Romish Question and Scriptural Geology; and just to show you the superiority of those times, of all the young men, whether doctors or embryo clergy, rising chemists, incipient missionaries or students at the courts, there was not one who was not capable of settling any of the great questions of the day without a moment's hesitation.

Before the shade passes, one last word.

The Chester apprentice, just before his death, stated his profound satisfaction that he had been able to read Humboldt's "Cosmos," understanding its allusions. Peace to his memory! he is gone where the Tower of Babel shall no more distract him.

"Multæ tericolis linguæ cœlestibus una."

ETHICS OF TRADE EXTENSION.

There is another subject of paramount importance and of extreme difficulty, to which I ask your attention. I cannot do better than introduce it by reading a letter I received from Mr. T. W. Gissing, of Wakefield:—

"Dear Sir,—In the above subject I think one point should be particularly considered, and that is the increasingly mixed character of the business conducted by most of the best educated chemists. My belief is that this feature will become every year more marked, and I believe one of the main reasons of the development is the comparatively miserable incomes that even the best businesses yield when confined entirely to drugs.

"The most intelligent men (especially if they have a little capital) are the first to rebel against the restricted form of business: they feel disgusted to see men around them in other businesses with no education (compared with their own) amassing wealth easily, whilst they may go on through a long life and barely live.

"Whether any law compelling surgeons to give up dispensing would alter it, will be much discussed. My opinion is that that would affect only a few, and that the great mass

of pharmacutists and non-pharmacutists would still be left in the same condition. As it is, the thing crops out in every form. One man makes soda water; another indulges in oils and colours; another does a private wine trade; another pushes some proprietary article; others become manure makers; and so on. But it all tends to one thing, and that is to prove the discontent of the most intelligent members of our business with their remuneration."

With regard to one paragraph, I can only answer it from a London point of view. It would make not one straw of difference to us whether such a law as that alluded to were passed or not. When a London surgeon so far forgets himself as to keep an open retail, his business is rarely of such a character as to excite apprehension in the mind of the most timid pharmacist, and he is naturally looked down upon by the trade on one hand, and the profession on the other. But this leaves the great question untouched, the acknowledged existence of small remuneration and consequent distress, coupled with the equally acknowledged fact that pharmacutists resort to various expedients in order to increase their trade returns.

Does this most undesirable condition belong to pharmacy as such, or can we trace out a definite explanation? Let me call your attention to the following advertisements; they are selected with no care, and similar announcements may be found in the daily and monthly press, thick as leaves in Val-lombrosa. I have retained the original print to show that they were no invention of my own:—

TO SURGEONS and CHEMISTS.—For immediate unreserved SALE an established neatly-fitted SHOP, principal northern thoroughfare. Good opportunity for an active practitioner. Good house. Rent low. £42. Price £120. Stock reducible to £100.

TO CHEMISTS and DRUGGISTS.—For Disposal, in Nottingham, a snug little Drug Business. Owner leaving on account of ill-health. This is an excellent opening for a business man. Price £120.

FOR IMMEDIATE DISPOSAL, a Light Retail and Prescribing Cash Counter Trade; well situated in one of the principal Market Towns of the West of England; commands a large neighbourhood. Capable of great increase by an energetic young man. Rent £30, could be more than half covered by sub-letting. Price, including household furniture, £250.

TO BE DISPOSED OF, in an increasing neighbourhood of a populous Town on the South Coast, a Drug and Prescribing Business; established three years. Returns from £5 to £6 per week. Rent £18. Incoming £160.

TO CHEMISTS and DRUGGISTS.—For immediate Disposal, a beautiful SHOP, with an excellent business, near the Wandsworth-road, Vauxhall. Amount required £250.

IN a beautiful Watering Place on the South Coast, an excellent and rapidly-increasing Business, with valuable Lease of Premises. Price £150. The opportunity is specially worth the attention of a Gentleman from one of the leading London Houses.

IMMEDIATELY, the Business of a Chemist and Druggist, situate in one of the best thoroughfares of a large Town in the Midland Counties. Established twenty-one years. Price about £120.

IN a First-class Agricultural District. A fine opening for a Young Man of tact. Stock and Fixtures nearly new, and of the best description, at Valuation. No Goodwill. Incoming about £200.

£220. To be Disposed of, in consequence of severe indisposition, a Retail, Dispensing, and Prescribing Business, situated in the best part of a pretty Town in Surrey. Established twenty-five years.

A SMALL Retail and Prescribing Business, well situated in a leading thoroughfare of a good Market-Town. The prospects of increasing Trade are excellent. Price £115.

IN a populous neighbourhood at the North End, a Prescribing and Light Retail Business. Profits large. Rent low. Price £120.

IN a great thoroughfare and populous district, a good Retail and Prescribing Business, well suited for a Medical Man, with a branch Post-Office attached. Purchase, £250.

AT the South End, a neat Dispensing and Prescribing Business. Price £250.

A BUSINESS in a leading thoroughfare in the City of London, returning £8 weekly. Entrance £150.

AN excellent opportunity for a man with a small Capital. A profitable Prescribing Business, in a large Manufacturing Town in Lancashire. Present returns £250 per annum, capable of increase. Profits large. Rent £14. Incoming £70. Satisfactory reasons for disposal.

A RETAIL and Prescribing Business, complete for £40. Rent £20 per annum.

There is no special providence watching over pharmacy; certain causes produce certain effects, and it is true in pharmacy as in every other trade whatever, *ex nihilo nihil fit*, of nothing nothing comes.

When a pharmacist will commence life on so narrow and poverty-stricken a scale, he deliberately courts misery and invites distress; he must accept the consequences, and he has no right to blame pharmacy for that for which it is in no way responsible. But you will justly make the remonstrance,

these are mere business statistics; these are not ethics. Certainly they are not, but before we can rightly understand what ethics are, they must be clearly and broadly marked off from what they are not. The one point I want to bring home to you, and the one point I wish you to carry home from Nottingham is this, that the best code of ethics under heaven will not stand in the place of a sound judgment and trade common sense. There is a grand ethical deliverance to be worked out by an agency, of which more hereafter.

Let us carry the same subject out to its inevitable results, the rather as it is one of which most writers are afraid. There is a certain buoyancy and elasticity in youth; there is also a healthy charm in novelty; but months roll round, and the new proprietor of a mistake in commerce gradually looks his business in the face. It is too small; it presents too little scope for either his industry or his intelligence. In most of these cases the master is single-handed. Hard life; hard times. This is the dark side of pharmacy; and if there were more things in heaven and earth than were dreamt of in the philosophy of Horatio, certainly there are more urgent cases where seasonable assistance might be availing than those registered on the list of our Benevolent Fund.

And now (please to notice this) the routine of weary hours, and the tyranny of the pressure of small means and petty claims exert their baneful influence. By slow but sure degrees the man's sympathies become contracted, and his aspirations blunted. Here comes in the hopeless battle against impossibilities. The pharmacist ends with losing heart, detesting pharmacy, and railing at every trace of ethical endeavour as so much childishness.

Meanwhile, the shop is either sunk in neglected dirt, or has become more and more pretty. Vain task to attempt to jewel the holes when the mainspring is wanting.

Cheap and flashy sundries have usurped the place of the little pharmacy there was, and the doomed establishment has sunk down into the weakest phase of a bazaar. Not only this, but to recruit an atrophied exchequer, marvellous nostrums, which reflect no credit on the inventor, are gradually introduced, recommended by flaming placards and mendacious labels. We mourn for pharmacy, but we grieve most for the pharmacist. Sir Isaac Newton, standing behind that counter, goaded by similar pressing wants, and weighed down by similar quick necessities, might be tempted to do the same.

Let us not write elegant essays, tricked out with points and phrases, but let us talk plain common sense. What forces such a proprietor on a course no thinking man can justify? Has he ceased in his heart of hearts to be a pharmacist? Has he sunk his sense of self-respect? Was he born to fritter away his life in this unhealthy littleness? Come round this way, and I will show you. You see that nasty-looking animal; it is called a wolf, and he simply wishes to keep it from his door.

We have seen that the question is complicated by an extraneous difficulty; on the one side we have ethics and their claims, on the other the stern truth, *necessitas non habet leges*,—necessity has no laws. Having thus cleared the subject of one of its embarrassments, we come back to the original proposition—Is there a true, legitimate, i.e. ethical method for the development of the legitimate business of the pharmacist? What is, you may ask, legitimate business? And there, I am afraid, we shall not agree.

Firstly, I deny, and always have denied, that pharmacy is just so far legitimate as it is connected or unconnected with dispensing. This is one branch, and by that branch exclusively I get my living.

Secondly, I deny that that man is equal to his position who has no wider range of thought than the subjects necessarily suggested to him by the demands of a retail trade. If either of these theories be true, our Society has been one long farce, and has taught us a heap of useless things. But a pharmacist must be a chemist; he is infinitely advantaged if a good botanist, and he is in no way injured if he have a fair acquaintance with *Materia Medica*. If, moreover, he has some practical skill in quantitative and qualitative analysis, his chances are still brighter; while in many districts it is to his extreme advantage to be well up in assaying.

No one man shines in all these things; let each to the utmost of his ability follow out the bent of his own mind. To talk of the restricted nature of the druggist's business seems to argue some ignorance of the subject. "The true reason," says Mr. Dean, "why so many shops exist by which the

owners fail to get a living arises from their profound ignorance, not only of the common principles of trade, but of the merest elements of their business. Young men with little experience, either from books or practice, who scarcely know a dandelion when they see it, who cannot tell marshmallow from hebane, and whose chemical knowledge will not enable them to explain the difference between an acid and an alkali, open shops in the most unlikely situations, which could scarcely, under any circumstance, command success. The swarms of such hopeless pharmacutists are the children of low education and a neglected apprenticeship."

The smallness of returns is another point, the very difficulty with which we wish to cope. There is at least one means of help. Let the pharmacist study first, though not exclusively, his own immediate neighbourhood—its wants, manufacturing, medical, sanitary, social, or strictly local. If by his skill he can meet any of these in part or altogether, he is a truer and more ethical chemist than the man who that morning has made an eight-ounce mixture, and then gazes into vacancy for the chance of making another.

May I remind you of those two admirable sets of Cantor Lectures, delivered by Grace Calvert before the Society of Arts. The first was entitled "Chemistry applied to the Arts;" the second, "On some of the most important Chemical Discoveries within the last Two Years." This second series comprised arts and manufactures, agricultural chemistry, physiological chemistry, rocks and minerals, metals and alloys. I cannot conceive two more useful courses, or more directly adapted to the immediate purposes of the druggist. I also can testify, from sorrowful experience, to the painfully overcrowded state of an audience which thoroughly appreciated the value of the lectures. I am told that giant manufactures swamp individual effort; to some extent, and in the case of certain things, they do; but I have yet to be convinced that from such a wealth of objects the pharmacist might not find something on which to bestow his special care, and might not in so doing increase his reputation and augment his till to a much larger extent than he does at present.

It is therefore with extreme satisfaction that I notice the somewhat new introduction of Liebig's dietetic preparations—his various foods and concentrated meats, and other preparations of the same class. It is the direct business of the pharmacist to produce them, and it does not militate against argument to say that this is but one avenue of income, and could not support universal pharmacy: no more would one particular stone give stability to a tower.

One thing is certain, that in our day he who assiduously combines chemistry with physiology seems most likely to have a chance of ultimate commercial success. I have faith in high-class pharmacy. With regard to villages and provincial towns, I am not prepared to give an opinion; but with regard to densely populated districts and large commercial centres, notwithstanding many plausible arguments to the contrary, my creed is still unchanged. Yet there is the stereotyped answer—a small business cannot afford pure pharmacy: the sheet-anchor of commercial enterprise rests in well-selected sundries. But when in London we see certain houses, all known by name, not one of which has found pharmacy a despicable source of income, not one of which sprang ready-made from behind the clouds, but by patient, unwavering perseverance in one definite course worked out its present eminence, we may infer without presumption that their mode of conducting business is neither romantic nor irrational.

The question of advertisement, as a means of trade extension, is such a marked feature of modern times, that it cannot be altogether passed over, more especially as it is a distinctly ethical consideration. You will find the whole subject most impartially discussed in a little work called "La Pharmacie," by M. Fumouze, a review of which appeared some time back in the pages of the Journal. He decides in favour of advertising. The right use of advertisement is best illustrated by showing what is *not* right. When a man advertises his own private nostrums for the cure of all sorts of complaints, which in the very nature of things are not likely to be cured, or even relieved, by one and the same remedy, it is an abuse of the advertising privilege. When he represents a medicine as "Oil of this" or "Extract of that," knowing that is only partially so, or perhaps not at all, it is an abuse. Mr. Edward Wood has summed up the exhibition of such fictitious articles as "wholesale pre-

scribing of the worst kind, viz., the giving of advice unsought to a person unseen by a person incompetent." There is no objection to a man having private nostrums, but the upright man will act uprightly with regard to them.

With regard to English pharmacy, the following are the arguments against:—

1. It is not consistent with the professional character of the pharmacist. No medical practitioner dare advertise, directly or indirectly, without fear of losing social and professional standing.

2. It is well known that many great houses of established reputation have never availed themselves of advertisement as a trade expedient.

3. Many world-known names have been created without resort to this particular agency.

On the other hand, the arguments in its favour are as follows:—

1. Given as a problem to define accurately what is advertisement and what is not.

2. Many of our leading men, including more than one who has occupied the presidential chair, are most persevering and systematic in its use.

3. It has been occasionally, though not systematically, employed by houses governed by the severest and most rigid regulations.

4. Competition is now in so keen a phase that there is a danger in our modern times of being swept away through its neglect.

5. In the highest of all professions, the clerical, we are made aware of any special service by the medium of advertisement, and we learn by the direct agency of a column in the *Times*, that the Right Reverend the Lord Bishop of Oxford, or that Monseigneur Manning will appeal to the sympathy of the public.

On these grounds, in spite of my antecedents of theory, practice, and education, I am inclined to decide that the right use of advertisement is not contrary to the true observance of the ethics of pharmacy.

I cannot leave the subject without repeating my too often expressed opinion, that a working laboratory is a great source of power as regards trade extension.

I still think that some of the good money employed on decoration, on splendid windows and architectural embellishment, might be better spent on a selection of useful pans, a moderate-sized still, and a few convenient forms of apparatus. I still think that whoever once has tried the plan of making his own preparations would ponder long and deeply before he ventured on the doubtful economy of purchasing them elsewhere.

But while I have been talking about ethics, I have felt deeply all along how feeble and unsatisfactory was the argument. For what at present is English pharmacy? A name—a label that may be stuck with equal legality on a man like your late President, or on some stray discontented grocer.

And our own Society is a grand amateur effort, highly benevolent in its intentions, but impotent in carrying them into any tangible result—a sort of kind father who educates his children, and then has to turn them out unprotected on the world.

I have talked about the misery of a section of our brother druggists, and here comes out in terrible relief the weakness of our corporate position; this misery is complicated and aggravated tenfold by the absolute facility by which our ranks may be recruited. Listen for a moment to a communication from Mr. H. Sugden Evans:—

"The absolute freedom of the drug trade is its curse; no skilled labour is more unprotected; even the bricklayers, stonemasons, carpenters, coopers, and shoemakers are more jealous of their rights. This absolute freedom attracts needy men without knowledge of the trade, who, wholly dependent for their supply upon the wholesale dealers, do not, and probably could not, make or teach their apprentices how to make the simplest extract, infusion, or tincture, and by luck rather than cunning avoid serious or fatal blunders in dispensing. These needy men are glad to get apprentice fees, to make a drudge of him, and turn him upon the world in innocent bliss of his own ignorance. He seeks a situation as journeyman, and can give no satisfaction; he rolls from place to place; then, finding all disappointment, if he chance to command slight means, or a little credit, he opens for

himself as master, and thus perpetuates this demoralized state of things. But if he feels his inability to fill a dispensing situation, he seeks to occupy a subordinate post, anything with a prospect of advancing, in the wholesale, where his practical deficiencies may remain unobserved."

What can stop this? Is there never to be a barrier thrown between the man and misery, between the business and degradation? I have spoken of a great deliverance. I believe our sole hope is in a stringent Act of Pharmacy, on the one basis of compulsory examination.

The following is the calm and lucid statement of Mr. Orridge:—

"In reply to your note I can only suggest, as bearing on your inquiry, that beyond all doubt the passing of the Apothecaries Act of 1815 removed apothecaries from a low position to a high one, and, by making education compulsory, reconciled the public to paying good fees (charged in one line) instead of the miserable little details of an old doctor's bill. The ethics of the medical profession, in fact, were improved by taking away the temptation to charge exorbitantly for physic, and substituting a just demand for skilled labour.

"Precisely the same result, I believe, would follow, if the examination of chemists were made compulsory prior to their undertaking to compound prescriptions. The public would pay a good price for skilled labour, and every pharmacist of legitimate position would be better remunerated. In short, the temptation to quackery would be lessened, and the inducements and incentives to gain a scientific reputation increased."

Not that any legal measure will at one stroke, like the wand of an enchanter, transmute the incompetent and non-descript pharmacist into an intelligent and higher being. Every Government measure must respect existing rights, and assign a date from which its operations must commence. The first visible effect of the passing of such an Act will be to flood England with little druggists' shops, and materially to swell the ranks of mediocrity. Time, the great restorer, will set matters right, and in due course we shall have men of superior culture and known ability. Then, and not till then, may we truly talk of ethics, not as polite observances, but as a code.

Then may we make "Virgil and Euclid our touchstones" for a preparatory examination, for we shall have solid advantages to offer our apprentices in return; then may we ask the student to pass through his curriculum, because it will be the passport to an honourable career, the rewards of which will not be snatched from his grasp by charlatanism on the one hand, or by impudence on the other; and then we may with confidence invite our sons to enter on pharmacy as a vocation worthy of their previous training and their after ambition.

I was once present at a panoramic exhibition where the haek lecturer gave as usual the population of the different towns depicted, together with scraps of information from the guide-books. The scenery was most magnificent, and it ended with a glorious view of Rome and the surrounding country. Suddenly the lecturer, who had known better days, forgot himself, and looking at the glowing landscape, he exclaimed, "Oh, that it were real!"

I also have talked about better things, and as subject after subject has passed in rapid succession, I have thought on them with a faint and desponding heart. These are things which go on to make up what pharmacy might be, they are not the elements of a pharmacy which exists.

May that day come quickly, when the strong and intelligent hand of law may give reality to these shadows.

Mr. GILES said that the comprehensive subject which had been so admirably handled by his friend Mr. Ince was one which he had proposed for the consideration of the Conference, and he had therefore much pleasure in rising to express his hearty approval of the opinions enunciated in the essay. He acknowledged the disagreeable fact that pharmacy was a trade, but trusted that the time was not far distant when the public would be forced to admit that the pharmacist was something more than a mere tradesman. The good time was coming, he hoped, when compulsory education would prevent unqualified persons undertaking the important business of dispensing medicines. He agreed with Mr. Ince in thinking that the practice of pharmacy ought to be greatly extended. Those so-called pharmacists who were entirely dependent

on wholesale houses for the preparations of the Pharmacopœia were mere chapmen in drugs.

Mr. BRADY was also hopefully looking forward to the good time coming. He was glad that Mr. Ince had proposed the adoption of the obviously correct term "pharmacy," for what was now commonly designated a shop. Strictly speaking the latter term was correct, but as the work done by a dispensing chemist comprehended much besides the mere selling of drugs, the place where that work was performed ought to have a special name.

Mr. CARTEIGNE condemned the use of inferior drugs in the medicines supplied cheaply to the poor, and warmly supported Mr. Ince's opinion that specialities ought to be obtained from the makers who had introduced them. He believed that the present hours of business were unnecessarily long.

Mr. HALLIDAY (Manchester) advocated early closing.

Mr. DEANE referred to the relative duties of masters and assistants, and lamented that they were often neglected. Each of his own assistants was allowed to take a whole day every other week.

Mr. STODDART feared that masters seldom considered the comforts and wishes of their assistants, who were often virtually slaves. He thought that early closing would be impracticable in certain districts.

Mr. BRADY said that chemists ought not to take apprentices who were not fitted by general education for the calling. He proposed that Mr. Ince's paper should be printed as a pamphlet and widely distributed.

Mr. SCHACHT was opposed to special arrangements between chemists and surgeons, relative to the dispensing of prescriptions. He thanked Mr. Ince for having defended the rights of the inventors of new preparations.

Mr. RIMMINGTON (Bradford) remarked that well-educated apprentices could not always be obtained. He was in favour of early closing.

Mr. SURTON (Norwich) would object to take an apprentice who had not received a fair education. He had reason to believe that many London chemists did not willingly adopt special articles prepared by their brethren in the country.

Mr. HEATHFIELD warmly seconded Mr. Brady's proposal for circulating the essay among chemists and druggists.

Mr. GILES admitted that the substitution of a counterfeit article for the one prescribed was fraudulent, but could not acknowledge the exclusive right of any pharmacist to use a particular formula. He himself had imitated "Chlorodyne" at the request of medical men who would not employ a secret remedy. He did not call his compound "Chlorodyne," because he regarded that name as private property which he could not fairly use. With regard to the training of apprentices, he had long held the opinion that it should commence in the laboratory instead of the shop. With regard to the unsatisfactory emoluments of pharmacy, he thought the time had arrived for the leading chemists to stand up for more remunerative prices. He believed that the Council of the Pharmaceutical Society had become a little too constitutional, and that it did not display sufficient energy in dealing with questions affecting the general welfare of those who practiced pharmacy.

Mr. BALDOCK ascribed the admitted dissatisfaction of assistants to the general unsettled relations of capital and labour. He called attention to the fact that many of the leading pharmaceutical firms objected to take apprentices.

Mr. ATHERTON on the part of the Nottingham chemists warmly thanked Mr. Ince for his admirable essay.

Mr. RICHARDSON (Leicester) thought that a fixed tariff might be advantageously adopted by the chemists of one district.

Mr. REYNOLDS looked with little favour on secret remedies, and was disposed to indorse the opinion of the late Jacob Bell, as to the absence of any essential distinction between preparations like Chlorodyne and Holloway's Pills.

After some discussion, Mr. Brady's proposition respecting the circulation of Mr. Ince's essay was referred to the General Committee.

Mr. GILES then proposed, and Mr. INCE seconded, the following resolution, which was unanimously adopted:—"That this meeting considers that the practice of pharmacy requires to be limited to duly qualified persons, and that it is necessary, in order to attain this result, that an appropriate examination should be enforced by legislative authority, and

the members of the Conference will use every opportunity to promote the passing of a well-devised Act of Parliament upon the subject."

The Third Sitting of the Conference was opened at half-past ten on Thursday morning, August 23rd, when the reading of scientific papers was resumed.

ON THE CALAMINE OF PHARMACY. BY R. H. DAVIS.

This report on the quality of calamine, supplied by the ordinary dispensing chemists, was based on analyses of nine specimens obtained from different sources. It was known that the so-called calamine found in commerce a few years ago, was almost invariably composed of sulphate of baryta with small quantities of carbonate of lime and oxide of iron, and the author's analyses were made to determine whether there had been any advance in the purity of this preparation. Three of the specimens examined contained respectively 73.64, 67.64, and 56.25 per cent. of oxide of zinc, and no trace of sulphate of baryta; they might therefore be considered genuine. Two of the specimens appeared to be special mixtures of oxide of zinc and the barytic calamine; but one of these specimens was supposed to be about thirty years old. The remaining four were examples of the old quality, and contained from 86 to nearly 95 per cent. of sulphate of baryta. One of these, however, was known to have been sent out from a London house seven years ago. The author concluded that the genuine calamine was now frequently supplied, and expressed a hope that the sale of the barytic compound would soon be discontinued.

ON THE SPIRIT-VALUE OF A FEW PURCHASED TINCTURES. BY JOHN ATTFIELD, PH.D., F.C.S.

Of twelve specimens of proof-spirit tinctures recently purchased in different parts of the country, and sent to the author for examination, not one contained the right proportion of spirit. Only three contained a proportion of alcohol, even approaching that in proof spirit (49 per cent.). One of these comparatively good specimens contained but 44½, and two 45½ per cent. The remaining nine specimens contained proportions varying from 33½ to 41 per cent. With regard to the nature of the alcohol in these specimens, it was found in nine cases to be purely ethylic; but in the other three to be methylic. The three methylated tinctures came from one shop. The price at which the tinctures were supplied varied to an unnecessary extent. Two appeared to have been sold at the rate of 4d. per ounce, three at about 3d., three at about 2½d., and three at 2d. per ounce.

NOTES ON PLASMA. BY G. F. SCHACHT.

The preparation of glycerin and starch introduced by the author in 1858, as a substitute for fats in ointments, had been much talked about and largely prescribed, and had recently been proposed, by no less an authority than Dr. Redwood, as a proper article for the new pharmacopœia. Since 1858 the author had made no public allusion to plasma, and he therefore trusted that he might be excused for again bringing it under the notice of his fellow-pharmaceutists. Only two tangible objections had been made to the preparation; the first was that it became softer by exposure to the air; and the second, that it was liable to become mouldy by keeping. He admitted that the first objection referred to a property which plasma possessed in common with all preparations of glycerin. Little practical inconvenience resulted from this property, as he had kept plasma in a common covered pot for a long time without apparent change. With respect to the second objection to plasma, that it became mouldy on keeping, the author, without intending any contradiction of the observations of others, was bound to declare that he never saw a particle of mould upon plasma, and that for eight years he had never been more than a few days at a time without the article in stock. With regard to the preparation of plasma, some experimentalists had supposed that considerable differences in the results attended the employment of different kinds of starch. His own experience led him to attribute all variations of result to slightly altered manipulation, as arrowroot, tous-les-mois, and potato-starch all gave equally good results under exactly similar circumstances. His original instructions for preparing plasma were to take

seventy grains of starch powder, and one fluid ounce of glycerin, to mix the ingredients cold, and heat to 240° , constantly stirring. He had only to add that in preparing a large quantity of plasma it was more convenient to mix the starch with about one-twelfth of the glycerin, to heat the remainder to 260° , and then to mix all together, stirring till complete. By this modification of the process the dreary task of constantly stirring a large mass was avoided. The author referred to Dr. Redwood's proposed nomenclature for the preparations of glycerin, and suggested one which he considered preferable. Seeing that certain aqueous solutions were often called "aque," he suggested that solutions of medicinal substances in glycerin should be called "glycerina." The solid series prepared with plasma he thought should be allowed to retain the name "plasmae," under which they were introduced.

Mr. GILES advocated the retention of the name which his friend Mr. Schacht had applied to his useful preparation.

Mr. INCE and Mr. BALDOCK stated that they had never noticed mould upon plasma.

ON THE PROPOSED INTRODUCTION OF TWO SYSTEMS OF CHEMICAL NOTATION IN THE PHARMACOPŒIA. BY J. C. BROUGH.

HAVING called attention to the decision of the Medical Council to introduce two sets of chemical formulæ in the new edition of the Pharmacopœia, in opposition to the recommendations of the Council of the Chemical Society, Dr. Christison and Dr. Redwood, the author explained his reasons for condemning this decision. The older system of notation did not accord with the views adopted by the leading chemists of the day, and was rapidly disappearing from chemical literature. On the other hand, the system based on modern theories reflected a transitional state of chemistry, and would probably undergo many modifications in the course of a few years. The introduction of double formulæ would embarrass pharmaceutical students, and all who used the Pharmacopœia. It was therefore worth considering whether the use of symbolic formulæ might not be abandoned in the national work. The author had come to the conclusion that the symbols in the present edition of the Pharmacopœia were of little practical value, as the names, definitions, and tests in most cases were sufficiently distinctive. Reviewing the different classes of chemical compounds, he showed that a few trifling alterations in the pharmaceutical and descriptive names, or in the definitions, would remove all ambiguity, and obviate the necessity of employing chemical formulæ. The paper was necessarily long, as it touched upon every chemical substance mentioned in the British Pharmacopœia.

Mr. CARTEIGHE feared that the conclusive arguments, by which Mr. Brough had supported the recommendations of the Council of the Chemical Society, could not affect the edition of the Pharmacopœia that was now in course of preparation. He thought that the paper contained many valuable suggestions which might be advantageously adopted by the editors of subsequent editions, and that it clearly demonstrated the absurdity of overloading a practical work with theoretical formulæ.

ON A NEW MACERATING APPARATUS. BY R. W. GILES.

In this paper the author explained an apparatus which he had successfully employed in the preparation of infusum cinchonæ spissatum, and other allied liquors of ordinary and extensive use in pharmacy. The apparatus consisted of a series of eight conical macerators or funnels, each provided with a receiver. In using it, the water employed for maceration was passed successively through the powdered bark or other material divided amongst the eight cones, and each maceration was continued for such periods as might be appropriate to the character of the particular substance treated. The advantage of this arrangement was, that—with little more water than was required to moisten the whole—each of the eight portions received eight successive macerations, which were sufficient to exhaust even such stubborn materials as cinchona bark. The author thought that a museum of pharmaceutical apparatus ought to be established at Bloomsbury-square.

Mr. ROBBINS had for some time employed an arrangement of a somewhat similar character with excellent results, but had not said anything about it. (Laughter.)

ON A NEW FORM OF STIRRING APPARATUS TO PROMOTE THE EVAPORATION OF LIQUIDS. BY R. REYNOLDS, F.C.S.

In this paper the author described a very effective mechanical contrivance by which the contents of any number of evaporating pans might be kept in constant motion. The apparatus had been devised by the author to facilitate the most tedious operation connected with the wholesale preparation of extractum carnis. A working model was exhibited.

The last paper read we print without abridgment, as the arguments contained in it cannot be done justice to in a short abstract.

ON WEIGHTS, MEASURES, COINS, AND NUMBERS.

BY JOHN ATTFIELD, PH.D., F.C.S.,

DIRECTOR OF THE LABORATORY OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

I HAVE been at some trouble in collecting actual specimens of metric decimal weights and measures, with allied coins, etc., for temporary display at the Exhibition of Objects relating to Pharmacy now (August, 1866) open at the Assembly Rooms, Nottingham, in connection with the British Pharmaceutical Conference, and for more frequent reference should a similar exhibition be held annually in the towns visited by that Association.* I have done this in the hope of aiding in familiarizing at least one section of the community—chemists and druggists—with a system destined, without doubt, at no distant period, to displace the present barbarous confusion of weights, measures, and coins in use in this country. For, though habit prevents us from fully and constantly realizing the inconveniences attending the use of existing weights and measures, their incongruity with each other, and with our monetary and numerical systems is none the less real.

It is now, happily, scarcely necessary to say anything in favour of the universal adoption of the metric decimal system of weights and measures, and a corresponding decimal system of coinage. Most persons who have thought over the matter agree that such a proceeding would be to the immense advantage of education, labour, trade, science, and the general interests of society. Pharmacutists have frequently indicated their desire for change from the existing inharmonious methods of weighing, measuring, buying, selling, and calculating to a system in which either of these operations should bear a simple relation to the rest. They, in common with other people, recognise the convenience of the relation of grosses and dozens to shillings and pence, that so many sovereigns per ton must be the same number of shillings per hundredweight, etc. etc., and, whenever opportunity has arisen, have agreed to welcome a system which should bind weights, measures, coins, and numbers into one harmonious whole, characterized by a single relation equal in simplicity to either of the two illustrations just mentioned. Every volume of the *Pharmaceutical Journal* contains allusions to this subject in the form of reports of meetings, discussions, papers, letters, etc., and the Proceedings of our own Conference include an elaborate report on weights and measures, by Mr. Barnard S. Proctor.

What is asked of chemists and druggists is, to aid in promoting the general adoption of a system of weights, measures, and coins, which shall be in accord with the existing universal system of numbers. It is, perhaps, impossible to realise, much more to express, the advantages we enjoy from the fact, that in every country of the world the system of numeration is identical. That system is a decimal one. There are those who tell us an octavial would have been more convenient, but the universality of the decimal method of counting must obtain for it unquestioned preference. Whatever language a man speaks, his method of numbering is decimal; his talk concerning number is decimal; his

* During the intervals of the yearly meetings, the collection will be open to inspection in the rooms of the Pharmaceutical Society, Bloomsbury-square, London.

written or printed signs signifying number are decimal. With the figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, he represents all possible variation in number, the position of a figure in reference to its companions alone determining its value, a figure on the left-hand of any other figure in an allocation of numeral symbols (for example, 1866) having ten times the value of that figure, while the figure on the right-hand of any other has a tenth of the value of that other. When the youngest apprentice is asked how many units there are in 1866, he smiles at the simplicity of the question, and says 1866. How many tens?—186, and 6 over. How many hundreds?—18, and 66 over. How many thousands?—1, and 866 over. But if he is asked how many scruples there are in 1866 grains, how many drachms, how many ounces—he must probably bring out his slate and pencil. And so with the pints or gallons in 1866 fluid ounces, or the feet and yards in 1866 inches, or the pence, shillings, and pounds in 1866 farthings; to say nothing of cross questions, such as the value of 1866 articles at 9s. 6d. per dozen; and to say nothing of perplexity caused by the varying values of several individual weights or of measures of length, capacity, and surface in different parts of the country. What is desired, then, is that there should be an equally simple decimal relation among weights and measures and coins as already universally exists among numbers. This condition of things having already been accomplished in other countries, there is no good reason why it should not be accomplished in this. It is, doubtless, possible to decimalize our own weights, measures, and coins; but such a course would be difficult, added to which, the day has passed for the consideration of such a scheme. France, Holland, Belgium, Italy, Spain, Portugal, Switzerland, Greece, and South America, generally have all adopted a decimal system, founded on a measure of length (about eleven-tenths of our yard) appropriately called the *metre*; the United States,* Austria, Prussia, Switzerland, Sweden, Norway, Denmark, and Russia give indications of adopting it sooner or later, and the same system was legalized by Act of Parliament in our own country in 1864. From the *metre* are derived the unit measure of weight, the *gramme*, the unit measure of capacity, the *litre*, and the unit measure of surface, the *are*. 1866 metres contain 186 decametres and 6 over, or 1 kilometre and 866 over. 1866 grammes contain 1 kilogramme and 866 over. And so on, the prefixes deca-, hecto-, kilo-, myrio-, indicating multiples, deci-, centi-, milli-, sub-multiples. The coins attached to the system have a similar decimal relation, and may, indeed, be used as metrical weights, if not much worn. This metrical (*i. e.* metre-ical) system having been adopted in every case in which change has been made, it is incumbent on us to adopt it in preference to any other decimal system.

There are, doubtless, serious difficulties attendant upon a change affecting the daily, nay hourly transactions of every individual in a kingdom—difficulties caused even more by association than calculation, for the latter is only a matter of education, easily and quickly acquired, while it takes years to associate our requirements of articles with the quantities in which those articles can be obtained. Yet, what other peoples have done, the English can do. And, probably, by an extension of that class of terms which are independent of all systems and compatible with any, such as a *bottle* of wine, a *glass* of beer, a *round* of beef, *half* of this, a *quarter* of that, a *shilling's worth* of one thing, a *franc's worth* of another, so much *per cent.* of a whole, the change will not prove so formidable as it appears. So far as chemists and druggists are concerned, the transition will be comparatively easy, most dispensers having made up French prescriptions, in which the quantities are metrical.

In short, the only questions which, probably, need be discussed in the Pharmaceutical Conference are—how and when the metric decimal system of weights and measures should be introduced into pharmacy. In the British Pharmacopœia there is a table, showing the relations of the system, and in the forthcoming edition of that work we are to have an enlarged table, as well as, I believe, some additional allusions to the system. I trust that the table will include the English equivalents of the metric decimal units and multiples. It is only fair that the formidable appearance of a whole string of

figures necessary to show the metric value of a pound, etc., should be balanced by the equally formidable appearance of the string of figures necessary for the indication of the English value of a kilo-, etc. If not in the next, in the third edition let us hope to see metrical equivalents of the weights, etc., given in every formula. There would be no great difficulty in doing this, as already pointed out by Mr. Squire (*Pharmaceutical Journal*, May 2, 1859); indeed, it has already been done in a former edition of a Continental Pharmacopœia.

To memorialize the Medical Council, the body under whose direction the Pharmacopœia is published, with a view to the adoption of this course; to resolve that it would be desirable to ultimately use the metric decimal system of weights and measures in pharmacy, to the exclusion of all others; and to constantly, individually, make efforts to promulgate a knowledge of the nature and advantages of the system among friends and acquaintances, are, probably, the only ways in which, at present, the members of the British Pharmaceutical Conference can aid in promoting that desirable object, a simple universal relation between weights, measures, and coins, and the existing universal system of numbers.

17, Bloomsbury-square, London.

After some discussion and deliberation the following resolutions were passed:—

Proposed by Mr. INCE (London), seconded by Mr. ROBBINS (London), and carried—

"That it is desirable, in the interests of pharmacy, to adopt a system of weights and measures which shall accord with the existing universal system of decimal numeration."

Proposed by Mr. GILES (Clifton), seconded by Mr. BROUGH (Stockwell), and carried—

"That it is desirable that the decimal system of weights and measures proposed to be adopted in pharmacy should be the metric decimal system."

Proposed by Mr. BALDOCK (London), seconded by Mr. POOLEY (Bath), and carried—

"That the Executive Committee of the British Pharmaceutical Conference do memorialize the General Council of Medical Education and Registration in the name of the Conference, to the effect that the metric equivalents of the English weights and measures be given in every formula of future editions of the British Pharmacopœia."

USE OF METHYLATED SPIRIT IN MEDICINE.

In the course of the sitting Mr. R. W. GILES, of Clifton, read a paper "On the relations of Pharmacy to the Revenue," in which he animadverted on the recent Excise prosecutions reported in our July number (page 102), and clearly showed that in some cases the proceedings of the Excise officers had been unjustifiable.

After some discussion, the following resolutions were adopted:—

Proposed by Mr. REYNOLDS (Leeds), and seconded by Mr. JONES (Leamington),

"That this meeting has had under its consideration the subject of the use of methylated spirit in medicine, in connection with the recent changes of the law prohibiting the same for medicines intended for internal use. It records its conviction that great injury has happened to the best and permanent interests of the drug trade by the introduction of this compound, devised as it was for totally different purposes, and views with satisfaction the limitation of its use, now imposed by Parliament. With a knowledge of the many devices by which methylated spirit has been brought into unfair and underhand competition with pure and duty-paid spirit, this meeting regards with much apprehension the attempts which are likely to be made to evade the new law, and trusts that the Board of Inland Revenue will vigilantly guard against such evasion."

Proposed by Mr. REYNOLDS, and seconded by Mr. SCHACHT (Clifton),

"That this meeting desires to lay before the Board of Inland Revenue its opinion, that the virtual break-down of the system by which the use of methylated spirit has hitherto been regulated, urgently demands that some new plan should be devised for more securely preventing the conversion of a duty-free spirit into an imitation of pure spirit, on which duty has been paid."

* There is a coin of the United States in the collection, 5 cents in value, 5 grammes in weight, and 2 centimetres in diameter.

THE NOTTINGHAM MEMBERS.

The following resolution, most gracefully proposed by Mr. W. V. RADLEY (Sheffield), and seconded by Mr. W. J. HALLIDAY (Manchester), was carried by acclamation:—

"That this meeting tenders its warmest thanks to the Nottingham members of the Conference generally, and especially to the local secretary, for the judicious, untiring, and most successful labours to promote the objects of the meeting, and the comfort and pleasure of those who have attended it."

THE PRESIDENT.

At the close of the sitting

Mr. WADE (London) rose and said, that before the President left the chair, he desired on behalf of those who had attended the meeting, to express their hearty thanks for the courteous, genial, and able manner in which he had presided over them. They had always been exceedingly fortunate in their choice of Presidents, and the Conference could not fail to be successful whilst the rank and file were led by energetic officers. It would be particularly gratifying to the President to see so many of the old members of the Conference around him, and to know that so many new names had been added to the list of members. He would not occupy any more of the meeting's time, as he was sure that whatever might be omitted by himself in his attempt to express the feelings of the members would be made up by the acclamations of all present.

When the applause which followed Mr. Wade's speech had ceased, Mr. JONES, of Leamington, took the chair, and under his temporary presidency, the vote of thanks to the President was carried by the meeting.

The PRESIDENT said he could not find words to express the feelings with which he received such unquestionable evidence of the approbation of the meeting. He had derived much gratification from his connection with the Conference, and though he might sometimes be prevented from attending the annual meetings, he should always take a lively interest in its proceedings. He was delighted to find that the meetings brought together gentlemen representing different sections of one body, as he was convinced that the familiar intercourse of these gentlemen removed many erroneous notions which they had entertained respecting each other.

EXHIBITION OF OBJECTS RELATING TO PHARMACY.

The expansive nature of the British Pharmaceutical Conference was evinced by the remarkable success of Mr. Atherton's scheme for holding an exhibition of objects relating to Pharmacy, in connection with the Nottingham meeting. The collection of articles was varied and extensive, and everyone who examined it must have gained much practical knowledge. As a special committee was appointed to report on this Exhibition, and as its report, when published, will be reproduced in these columns, we shall at present restrict our observations to the most noteworthy contributions.

The collection of articles exhibited by Messrs. S. Maw and Son deservedly attracted much attention, though it comprised many things belonging to the domain of surgery rather than to that of pharmacy. The only objects we noticed which strictly came under the head of pharmaceutical apparatus were some highly-finished gun-metal moulds for medicated pessaries, suppositories, and bougies. The convenient porcelain inhalers, known as "Nelson's inhaler," and "Maw's double-valve inhaler," and the various forms of Dr. Richardson's apparatus for producing local anæsthesia were of course included in the collection. There were many beautiful sets of dental, midwifery, and ordinary surgical instruments; some electro-magnetic machines; and various special contrivances for facilitating novel surgical operations. As a specimen of fine turning Messrs. Maw and Son showed a hollow ivory pessary scarcely thicker than an egg-shell.

Mr. Sutton, of Norwich, an active member of the Conference, exhibited a splendid series of graduated burettes and other instruments used in volumetric analysis.

Messrs. Savory and Moore showed their pancreatised preparations of lard oil, cod-liver oil and cocoa, pancreatic emulsion, medicated gelatine discs for use in ophthalmic

surgery, medicated suppositories and bougies, a plant of *Datura Tatula* with cigars, cigarettes, and "tobacco," made from the dried leaves and young stems, an elegant yatch medicine chest, Dr. Ellis's obstetric inhaler with the anæsthetic fluids for using with the same, and their improved forms of eye and ear douche, and enema injection apparatus.

Messrs. Parsons, Richardson, and Co., of Leicester, exhibited numerous gelatine-capped bottles which must have delighted those members of the Conference who had been annoyed by Mr. Betts. The gelatine bottle capping, which originated with this firm appears to be rapidly taking the place of Betts's Patent Metal.

One of the most important contributions to the Exhibition was a series of samples of opium and scammony from Messrs. Southall, Son, and Dymond, of Birmingham.

Another valuable contribution represented the well-known firm of Messrs. Hearon M'Culloch and Co., and consisted of a handsome case containing a unique collection of Chinese medicines, and fine specimens of our official infusions, juices, and extracts.

A costly and tastefully arranged display of the precious metals and their salts represented the well-known firm of Messrs. Johnson and Sons. With the platinum crucibles, capsules, and evaporating dishes of these makers before him, any poor analytical chemist might be excused for coveting his neighbour's goods. A singularly beautiful specimen of crystallised bismuth, glowing with prismatic colours, was one of the gems of this collection.

The contribution of the American Pharmaceutical Association, referred to in our report of the first sitting of the Conference, brought under the notice of the English pharmacist many American specialities and some new forms of apparatus, and was calculated to afford him many useful practical hints.

A most interesting collection of Hungarian preparations was contributed by Dr. Wagner, of Pesh. Fine samples of syrup of violets and oil of chamomile in this collection attracted much attention.

The decimal system of weights and measures, which must eventually be adopted in this country, was illustrated by Dr. Attfield's admirable contribution, which comprised, besides drawings and models, complete sets of the actual weights and measures used in different trades throughout France.

The chief exhibitors of the popular "extractum carnis" were Messrs. Harvey and Reynolds, and Mr. W. Smeeton, of Leeds, and Mr. Van Abbott, of London. The chief exhibitors of medicated pessaries and suppositories, were Messrs. Bell and Co., and Mr. Bosley, of London, and Mr. Brady, of Newcastle-on-Tyne. Mr. Ball, of Birmingham, and Mr. Mather, of London, showed gas furnaces and burners; Mr. Bishop, samples of his granulated preparations; Messrs. Meggeson and Co., medicated lozenges; Messrs. Cliff and Co., pharmaceutical apparatus in stoneware; Messrs. Haywood and Sons, of Nottingham, elastic surgical stockings, belts, and bandages; Messrs. Ingram and Co., natural mineral waters; and Mr. Hardwicke, scientific books. Amongst the articles that illustrated Conference papers, were Mr. Schacht's new filter, first described at the Birmingham meeting; Mr. Reynolds's model of a new stirring apparatus, and Mr. Giles's new macerating apparatus.

We are aware that we have omitted to notice many important contributions to this remarkable exhibition; but as we have before stated, we intend to print the official report of the sub-committee, which will supply the deficiencies of this article.

THE DINNER.

On Friday evening, August 24, the Nottingham members of the Conference sumptuously entertained their fellow members at a dinner held at the Lion Hotel. The chair was occupied by Mr. S. PARR, of Nottingham, a vice-president of the Conference, and between fifty and sixty gentlemen sat round the table. After dinner many excellent speeches were delivered, some good songs sung by hosts and guests, and a most delightful evening was spent. Those non-resident members who were fortunate enough to be present at this social gathering will long remember the hospitality of their Nottingham brethren.

UNITED SOCIETY OF CHEMISTS AND DRUGGISTS.

The following address, adopted at a meeting of the Executive Committee, held on the 6th inst., has been forwarded to us for publication :—

"ADDRESS OF THE EXECUTIVE COMMITTEE TO THE MEMBERS OF THE UNITED SOCIETY OF CHEMISTS AND DRUGGISTS.

"On accepting office as your Executive Committee, we have undertaken the government of the Society at a momentous period of its existence. We believe that it has a great end before it, and that the brightness of its past achievements may be reflected upon its future career of usefulness and ultimate success, we hasten to erect the standard of peace and goodwill, and to invite the unincorporated chemists and druggists of the country to rally round us.

"We have assumed the right to initiate every course of action, and to judge upon all subjects affecting the interests of the Society; we hold undisputed control over the administrative functions of our officers, and we revise all matters of detail relating to the working of the Society. We deem it advisable to declare our responsibility in this respect in consequence of erroneous statements which have been circulated, tending to produce an injurious impression upon the minds of those who may not be fully acquainted with the facts of the case.

"Whilst thus acting on your behalf, it would be unjust to our Registrar and Secretary were we not at the same time to express our confidence in his able and energetic performance of the duties of his office, and his faithful fulfilment of all our instructions.

"Your representatives at the last Annual Meeting, whilst recognising the chartered rights of other institutions, enjoined upon us to spare no exertions to obtain the incorporation of the trade upon the basis of equal rights and self-government, and to make no compromise short of its attainment.

"To secure this object, we have authorised our Registrar to visit the members, and either by public meeting, committees, or individually, according to Rule 11, to organise other district associations, and in every way to increase the numerical and moral force of the Society, with a view to an efficient and successful campaign in Parliament. We also purpose, upon all suitable occasions, to advocate the extension of our Benevolent Fund, on behalf of which we intend soon to hold the Annual Festival, when we hope the occasion will be deemed an auspicious one for old friends of the institution to assemble in fraternal harmony.

"It was a gratifying feature of the Annual Meeting that a temporary difference in judgment revived the remembrance of former services, and evoked a visible solicitude for the continued fellowship of those who, though hesitating for the moment, enjoyed the confidence and regard of their brethren. We see no impediment in the decision of that meeting to a practical reunion, and in the spirit of conciliation we invite them to fill up the vacancies amongst us in Committee.

"To join again in hand and heart for the common cause, and to banish every dissension upon the very ground where divergence commenced, will evince no weakness, no timid submission, but will command the admiration alike of friends and foes, as an act of concession and mutual generosity.

"Should we happily succeed, peace will be restored to the Society, and in the name of that Society, whose peace we desire, most fervently we deprecate above all—*further discussion*.

"We issue this programme of our future proceedings in the kindly spirit in which we shall undertake them; we confide in the good sense of our brethren; and in doing our duty, we look for no encouragement or reward beyond their approbation, as manifested in their continued support to the Society.

"(Signed)

HORATIO PASS, *Chairman*.

"S. C. BETTY,
THOMAS SHERMAN ANDERSON,
ADOLPH BAUMGARTEN,
CYRUS FRANCIS BUOTT,
JAMES CROCHE,
HENRY HEPPLELL,
WILLIAM LACEY,
WILLIAM JENKINS,

JOHN A. FREEMAN,
WM. LEWIS,
JAMES RICHARDSON,
T. K. SALTER,
EDWARD THOMAS,
HENRY VENMAN,
AMBROSE WARDEN,
WILLIAM YEATS."



LONDON, SEPTEMBER 15, 1866.

NOTICE TO SUBSCRIBERS AND ADVERTISERS.

CORRESPONDENCE.—All communications should be addressed to the Editor, at 24, BOW-LANE, E.C.; those intended for publication should be accompanied by the real names and addresses of the writers.

QUERIES.—The Editor cannot undertake to attend to those which are anonymous, or to send answers through the post.

SUBSCRIPTION.—The subscription to the CHEMIST AND DRUGGIST is 5s. per annum, payable in advance. Should a receipt be required, a stamped envelope must be sent with the amount of subscription. A specimen number may be had upon application, price 6d.

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The CHEMIST AND DRUGGIST is published on the Fifteenth of every month, except when that date falls upon a Sunday, when it is published on the preceding day. It is regularly supplied direct to the Members of the Trade in Great Britain, Ireland, the Colonies, and all the principal seats of foreign commerce.

Everything intended for insertion in the current Month must be sent in before the 10th, except Employers' and Assistants' Advertisements, which will be received until 9 A.M. on the morning previous to publication.

EDITORIAL NOTE.

THE remarkable success of the recent gathering of chemists at Nottingham, and the importance of its results, have induced us to double our usual number of literary pages, in order that a complete report of the proceedings may be brought before our subscribers without loss of time. The BENTLEY year of the British Pharmaceutical Conference merits special notice, as it produced the first extensive exhibition of objects relating to Pharmacy held in this country, and also a masterly exposition of the principles by which the actions of all who practice Pharmacy as a trade should be regulated.

METHYLATED SPIRIT.

THE ambiguity of the new law, relating to the sale of methylated spirit, has given rise to the following correspondence :—

W. CORBETT, Esq.

DEAR SIR,—The enclosed extract, taken from an Act of Parliament recently passed, to amend the laws relating to the use of methylated spirit, requires a definite explanation, which I shall be glad to receive.

"Clause 8. No person shall use methylated spirit, or any derivative thereof, in the manufacture, composition, or preparation of any article whatsoever capable of being used, either wholly or partially, as a beverage, or internally as a medicine; and if any person shall use methylated spirit, or any derivative thereof, in the manufacture, composition, or preparation of any article as aforesaid, or shall sell or have in his possession any such article in the manufacture, composition, or preparation whereof any methylated spirit, or any derivative

thereof, shall have been used, he shall forfeit the sum of One Hundred Pounds, etc."

It is here stated that no person shall use methylated spirit, or any derivative thereof, in the manufacture, composition, or preparation of any article whatsoever, capable of being used, either wholly or partially, as a beverage, or *internally* as a medicine; and if any person shall sell or *have in his possession* any such article, he shall forfeit £100.

By this Act it is clear that no person is permitted to use, sell, or have in his possession any internal medicine that has any portion of methylated spirit in its composition; but it permits, by inference, the use of medicines so prepared for *external* remedies, and does not prohibit the use of liniments, lotions, etc., for veterinary and other purposes; but the penalty would be incurred by *having in possession* articles so prepared, which enter largely into the composition of external remedies, and are used also in smaller doses internally. The principal tinctures used externally—those of opium, belladonna, aconite, iodine, myrrh, camphor, and aloes—are used also for internal purposes. We are thus allowed to use certain articles *externally*, but are not permitted to *keep them for the purpose*.

With every desire to use methylated medicines for their legitimate purposes, we shall be subjected to a severe penalty as the Act now stands; and it is desirable that it should be understood whether methylated spirit may be used for *external applications*?

I am, dear Sir,
Yours truly,
JOHN WADE.

August 30, 1866.

Inland Revenue Office,
Somerset House, London, W.C.
12th September, 1866.

MR. JOHN WADE.

SIR—The Board having had before them your letter of the 30th ult., addressed to Mr. Corbett, I am directed to inform you that the Act 29 and 30 Vic. cap. 64, strictly prohibits the use of methylated spirit in the preparation of any article whatsoever capable of being used either wholly or partially as a beverage, or internally as a medicine, and forbids the sale or possession of such articles, and as the tinctures enumerated by you are capable of being used internally the application of methylated spirit in their preparation is clearly illegal.

I am, sir, your obedient servant,
ADAM YOUNG.

On the receipt of the above reply Mr. Wade again addressed the Excise authorities, putting the plain question—"Is it illegal to use methylated spirit in external applications?" An answer has not yet been received.

DENTIFRICES.

BY DR. C. E. FRANCIS.*

From *dens*, a tooth; and *friearo*, to rub.

This term is applied to preparations used for cleaning the teeth and tending to their preparation. Numberless preparations, under the name of dentifrices, have been spread before the public, and numerous have been the substances employed in their manufacture.

Nearly every pharmacist in the land has from one to a dozen preparations for the teeth to offer his customers, and every vendor of cosmetics has some favourite nostrum to recommend. They are in the form of *powders*, *pastes*, *soaps*, and *lotions*. Many of these preparations are undoubtedly of benefit to those who are in the habit of using them, and many of them perhaps do more mischief than good. How long a period dentifrices have been in use I am not able to say, but we find formulas for tooth-powder in very antiquated works. Like most of the old order of prescriptions, these at the present time look somewhat absurd. Many of you probably have noticed an old formula quoted by Goddard in his "History of the Teeth." For the benefit of those who have not seen it, I will repeat it; so if anybody present

desires to copy for future use, he can now have the opportunity of doing so. It reads thus:

"Take the head of a hare and three mice; burn and reduce them to powder, and mix with an equal weight of powdered marble." Here, says Goddard, you have animal charcoal and prepared chalk with a vengeance. This prescription is said to be over two thousand years old, and is claimed as having originated in the fertile brain of old father Hippocrates. There are many prescriptions of more modern date, which seem equally ridiculous. Even in Harris's works we find a curious compound, known as "Beaumer's Dentifrice." It is this:—Take of powdered pumice-stone, red earth, and prepared coral, $\text{āā } \text{ḡi}$; dragon's blood and cream of tartar, $\text{āā } \text{ḡss}$; powdered cinnamon, ḡij ; cloves, grs. xxv. M. The same author also gives us a formula for what he terms an *aromatic powder*, composed of Peruvian bark, powdered galls, chalk, and orris-root, in nearly equal proportions. I imagine the galls and Peruvian bark a decidedly aromatic preparation, well calculated to tempt children to use freely. I will quote one other from Harris, called "Lelande's Electuary Dentifrice." Take of pumice-stone, dried bones, and red coral, $\text{āā } \text{ḡij}$; calcined alum, orris-root, and powdered cinnamon, $\text{āā } \text{ḡij}$; rock alum and cochineal, $\text{āā } \text{ḡi}$. Add to this abomination a sufficient quantity of Narbonne honey to make a thin paste. Allow it to ferment forty-eight hours, and flavour with tincture of musk and cloves. Goddard gives a formula from Prof. Hufeland: Peruvian bark, ḡi ; red sanders, ḡiv ; and alum, ḡi . Flavour with oil of lemon.

A detersive powder from the celebrated Maury reads thus: Magnesia carb., lbi; cream tartar, lbi; sulph. quinine, ḡv . cochineal, ḡiss ; ol. pip. m., ḡiv ; oil cinnamon, ḡij ; neroli, ḡij . M.

A "Polish Dentifrice" contains ammon. mur., powdered catechu, myrrh, Peruvian bark, and orris-root. This would be so agreeable to the taste that I would advise you all to import a quantity at once. I might give you prescriptions for dozens upon dozens of dentifrices that have been recommended by as many different individuals who have prepared them, did I think you would be benefited by such a rehearsal. It may not be amiss, however, to give a list of the various substances which enter into their combination. I will name them alphabetically. Alum, bole armen., ashes of tobacco, ammonia mur., borax, bone-dust, bark, red, pale, and yellow, Quillia bark, bismuth, benzine, chalk, charcoal, cuttle-fish, camphor, catechu, cochineal, carmine, cardamoms, cinnamon, cloves, cream of tartar, coral, dragon's blood, galls, gaultheria, guaiac, honey, krameria, kino, lime, magnesia, myrrh, orris-root, oyster-shell, pellitory, pumice-stone, soap, white and Castile, soda, salt, sugar, red sanders, red earth, rose pink, tannin.

Some of these substances are but seldom used, and many others are of little account. The most popular substances, or those in common use for powder, are orris-root, yellow bark, gum, myrrh, chalk, and soap. These few articles, combined in various proportions, probably form the substance of at least two-thirds of all the tooth-powder used.

Tooth pastes are usually composed of orris-root, pumice, chalk, etc., combined with honey. A once famous, but repulsive-looking compound, was charcoal and honey, and it worked wonders in its own peculiar way, as we shall presently see. The most popular lotions are of the saponaceous order, and highly flavoured. The old order of mouth-washes were generally composed of tincture of myrrh, bark, camphor, etc. The everlasting sozodont, which is advertised on every fence and rock for fifty miles around us, is supposed to be an aromatic tincture of Quillia saponaria, or soap bark, from an evergreen tree growing in Chili. Of course, I cannot say positively that it is such. However, a very nice lotion may be prepared from this bark; but just allow me to say, at this point, that pure, sweet soap is fully equal to any *fluid* preparation that has ever been prepared for cleansing the teeth. But soap alone is not all that we desire. It has not sufficient body for a perfect dentifrice. The same may be said of all fluid preparations.

In forming a dentifrice we have several things to consider. Admitting that some preparation of this sort is required, let us see what will best subserve our purpose, and present the least number of objections. In the first place, tooth-powder should be pleasant to the taste, that it may be used freely by both old and young. It should also be as nearly *soluble* as possible. I contend that charcoal, pumice-stone, cuttle-fish,

* Read before the Brooklyn Dental Association, and printed in the *Dental Cosmos* of Philadelphia.

and similar substances, are unfit for common use. The harsh, insoluble particles are forced between the teeth and beneath the margin of the gums, forming a base for the deposit of salivary calculus, which, as it concretes, severs the membranous connection. The gums are thus kept in an irritated condition; the alveolar process becomes exposed to the action of destructive agents, consequently absorption takes place; the teeth loosen and fall out. I have known cases where particles of charcoal have remained imbedded beneath the surface of the gums for upwards of five years after its use had been abandoned. So much for gritty substances.

Now as regards Peruvian bark and gum of myrrh. They are less objectionable, but I think their properties in this connection much overrated. We do not need them in tooth-powder. They are unpleasant to the taste, bitter. Being insoluble in water, you get little or no medicinal effect; and where a medicinal preparation is desired, have a suitable wash prepared, adapted to the particular case, to be used in connection or alternately with the powder.

The best base for tooth-powder is pure precipitated chalk. It is entirely soluble in acetic acid. Borax is one of the very best of ingredients to combine with it. It tends to allay irritation of the mucous membrane, and imparts a peculiar sweetness to the mouth.

A simple and very excellent dentifrice may be made of prepared chalk and old white Windsor soap finely powdered, about six parts of the former to one of the latter. My own favourite dentifrice, which I both use and recommend, is simple and pleasant to the taste, and seems to answer every purpose that can be expected of a dentifrice for every-day use. It is this: \mathcal{R} creta preparata, lbsij; powdered borax and orris-root, lbi; cardamom seeds, \mathfrak{z} ij; white sugar, lbi. Mix. Flavour with either ol. rose, ol. gaulth., neroli, or jasmine. This, of course, is a mere matter of taste. If colour is desired, one pound of rose pink may be added, and as much less of the chalk used. Tooth-powder should be thoroughly triturated in a Wedgewood mortar, and finely bolted. The objects of its preparation and use are, to keep the teeth perfectly clean, to neutralize any fermented matter secreted in the interstices, to allay irritation of the gums, and to correct fetid breath. It should be used sufficiently often to keep the mouth in good condition, even though it be once or twice a-day. Prepared in a simple manner, no fears need be entertained that the teeth will wear out from its frequent use. As it dissolves readily, it must, of course, be used as dry as possible, and will keep best in well-stopped glass jars. That there is a necessity for a good and suitable dentifrice (in this present generation) to assist in the preservation of human teeth, very few close observers will deny. My own observation has led me to believe that scarcely any person can have a clean mouth without its use. I know that it is argued by those who differ from me in this respect, that horses, sheep, and cattle do not require the use of a dentifrice to keep their teeth from decay, or to insure them a sweet breath. This argument, so far as it goes, is very good; but it does not answer in our case. Horses and sheep do not live on hot mixed food as do their more enlightened masters, neither did their progenitors crave such unnatural diet. They also possess by inheritance a good sound set of masticators, and if they could follow out their own natural inclinations would so live as to keep their teeth and whole physical organization in a state of perfect health.

Do you not suppose that if our domestic animals, and their progenitors for a thousand years back, had been compelled to resort to the same sort of diet that we and our ancestors have so long indulged in, that they would also be cursed with rotten teeth and foul breaths? Examine the teeth of a poor cow that has been fed on hot distillery slops for even a few short years, you will find a very different mouth from that possessed by an animal who takes the cool, fresh grass from a country meadow. Look into the mouths of the many little children who daily enter our offices, and what do we behold? Children at ten, six, or even three years of age; their little "pearly gems" appear more like a miniature array of mouldering tomb-stones, dilapidated, jagged, and broken; frequently emitting an odour so foul as to compel one to stand at a respectable distance while viewing the ruins. Look also into the mouth of an adult who pays no attention to the cleanliness of his teeth; notice the discoloured remnants of a once perfect set of dentures; see the huge scales of calcareous deposit encircling the necks of the teeth, or nearly investing

their entire crowns; observe the tumid condition of the gums, and how the filthy calculus has forced them to recede, and it is no wonder they recede at the approach of such an offensive accumulation. I dare not say that the use of a tooth-brush and dentifrice will positively insure the teeth against decay, but a habitual cleansing process will greatly prolong their existence. I have heard it asserted that teeth are worn out by being cleansed. Even were this so, they had better wear out than rust out, or, as the old saying reads, "die clean if you will not live clean." But this is not apt to be the case. I have seen but a very few persons in my whole life whom I could conceive had injured their teeth by too much brushing, but have seen hundreds upon hundreds whose teeth were going to utter destruction from lack of care and tidiness. I do not believe in straining at the gnat and swallowing the camel. Cleanliness, gentlemen, cleanliness is next to godliness. Teeth should be brushed night and morning, particularly at night, for it is during the night that teeth are most ready to decay. During the day, the movements of the tongue, the fresh secretions of saliva, and the act of mastication, all tend, in a measure, to preserve the teeth; but during the night, little or no saliva is secreted, and particles of food filling their interstices being so long subjected to a moist and heated condition, rapidly ferment, and the fluids of the mouth are thus vitiated, inducing disease and decay.

THE ALKALI ACT.

Mr. R. ANGUS SMITH, the inspector under the Act, has described his proceedings during the last year in his second annual report to the Committee of the Privy Council. He states that the actual escape of muriatic acid during 24 hours in tons and per cent. was as follows:—

District.	Escape in Tons.	Per cent.
Western	0.5597	0.223
Middle	0.2958	0.2286
Eastern	3.9952	1.93
Scotland and Ireland	0.7426	1.161
Total	5.5933	—

When stated as a per-centage, the amount escaping appears small; when stated in tons it has another aspect. In rough numbers we may say 500 tons of gas are evolved per day, and of this five tons escape, or one per cent.

The inspector then goes on to describe the improvements.

He states that the amount of condensation in the Eastern District is slightly increased, but the amount of change is very small when shown in numbers, viz. 2.060 in 1861, and 1.9631 in 1865.

The actual improvement is greater than this; the condition mentioned in the previous report was difficult to maintain; the additions lately made render the maintenance easier, although not by any means so easy as is desirable. The following changes may be enumerated as steps in advance chiefly in this district:—

At No. 50. The muriatic acid passed into the separate pan condenser.

No. 56. Causing the water to meet the gas in the second condenser, instead of going down along with it.

No. 57. Making the gas pass through a third shaft, and making use of the condensers finished last February.

No. 59. Adding 162 cubic feet of condensing space to roasters.

No. 61. Adding 238 cubic feet of condensing space to roaster and condenser and a cooling shaft.

No. 62. Adding 3,170 cubic feet of condensing space, and by replacing an old condenser with a new one.

No. 64. Adding 462 cubic feet of condensing space to the roaster.

No. 66. The addition of two condensers, together equal to 1,386 cubic feet.

No. 68. Adding 384 cubic feet of condensing space, and additional supply of water.

No. 55. Converting their open roaster into a close one, and adding cooling space.

No. 67. Adding a small condenser of 288 cubic feet to one of the condensers.

No. 70. Adding 656 cubic feet of condensing space to the new roaster condenser.

No. 53. Causing the water to meet the acid in the second tower. This gives also more cooling space.

No. 52. Ceasing to use the old works and making new.

At No. 20 new condensers were built, and at No. 83, the cooling space has been very much lengthened, whilst a new condenser is in progress: and so on.

The figures as to the condensing and cooling space, in relation to the amount of work done, are thus recorded:—

District.			Salt used in 24 hours.	Cooling Space.	Condensing space.
			Cwts.	Cub. feet.	Cub. feet.
1. Western	..	..	8·701	17·928	180,185
2. Midland	..	..	2·712	19·878	72,748
3. Eastern	..	..	7·153	40·931	142,819
4. Northern	..	..	2·217	54·544	35,667

This gives

District.			Cooling space for every cwt. of salt used in 24 hours.	Condensing space for every cwt. of salt in 24 hours.
			Cub. feet.	Cub. feet.
1. Western	..	..	2·060	20·709
2. Midland	..	..	7·330	29·240
3. Eastern	..	..	5·772	19·966
4. Northern	..	..	24·602	16·088

The Report contains the following list of the Registered, Alkali Works:—

St. Helen's Chemical Co.
Crosfield Bros. and Co.
Evans and McBryde.
James C. Gamble and Son.
Gaskell, Deacon and Co.
J. Hutchinson and Co. (No. 1.)
J. Hutchinson and Co. (No. 2.)
William Hill and Sons.
Runcorn Soap and Alkali Works.
Hazlehurst and Sons.
Weston Alkali Works.
Andrew George Kurtz.
Port Tennant Copper Works.
Borax and Alkali Works (Widnes).
J. Marsh and Co. (Ravenshead).
J. Marsh and Co. (Parr).
Frederick Muspratt.
James Muspratt.
Marsh Alkali Company.
Muspratt Bros. and Huntley.
Conham Chemical Works.
Mersey Chemical Works.
Smith and Maudsley.
Netham Chemical Works.
James Gibb.
Vivian and Sons.
Counterslip Sugar Company.
Bridgewater Smelting Works.
Slack, Ashworth, and Co.
New Road Chemical Works.
Thos. Adkins and Co.
Frederick Allen.
William Barton and Co.
H. Becker and Co.
Richard Bealey and Son.
Holland Bank Alkali Works.
Henry Bury and Co.
Chance Brothers and Co.
Thomas Dentith.
Thomas Farmer and Co.

John Farmer.
John and Thomas Garrett.
Harrison, Blair, and Co.
Burnden Chemical Works.
William Howarth.
Lea Brook Alkali Works.
John Metcalf and Sons.
Christopher James Schofield.
John Smith and Co.
John Riley.
Tennants and Co.
Edward Wilson.
Richard Paxton.
George Whewell.
Wm. Hunt, Aire and Calder Chemical Works.
Wm. Liddiard, Ocean Street, Stepney.
J. and W. Allen.
C. Allhusen and Sons.
Thomas Bramwell and Co.
Thomas Lomas.
Washington Chemical Works.
Blaydon Chemical Company.
T. Burnett and Son, Dunston.
T. Burnet and Son, Bill Quay.
Carville Chemical Company.
John Cook.
Cook, Brothers.
Haworth Chemical Works.
Jarrow Chemical Works.
Friars Goose Chemical Works.
Jarrow Hill Chemical Co.
Low Walker Chemical Co.
H. L. Pattinson and Co.
Ebenezer Ridshaw Ridley.
James Shorthouse and Sons.
Solomon Mease and Co.
Walker Alkali Works.
Seaham Chemical Works.
Netherfield Acid Works.
Alex. Hope, jun., and Co.
McGeachy and McFarlane.

J. Montgomerie and Co.
Richard Smith.
Bonnington Chemical Works.
Charles Tennant and Co.
Morgan Mooney.

William McLeish.
Wm. Josh. Kane and Son.
J. M'Kenny and Co.
Irvine and Bryce.

The Inspector describes a process by which the vapour from the roasted saltcake may be obviated, and, in conclusion, makes the following statement as to the makers of sulphate of soda:—

"Some of the London makers of sulphate of soda considered that they were not included under the Alkali Act, and some discussion took place on the subject. Strictly speaking, their arguments were insufficient in my opinion; but it is quite clear that the Act would not have been introduced for works of the kind known in London, where the amount of alkali made is small, the condensation is in Wolff's bottles, and there is no roasting, so that no alkali is finished. I considered, therefore, that the spirit of the Act would be complied with, if in such cases registration were not rendered compulsory unless complaints were made, when the matter would be reconsidered. Of the eight cases of this kind known to us in London, three of them preferred to have their names kept on the register."



THE YORK CHEMISTS.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—I trust to your usual fairness and impartiality for the insertion of the following remarks:—

As one of the York chemists, and the first of the United Society's members in this city, I feel called upon, in justice, to notice a letter in your last impression.

It is quite true that on the formation of the York Association Mr. Brown was appointed secretary, and everything went on harmoniously enough until the appearance here of the rival pharmacy bills, when, at a meeting hastily convened, and consisting of one wholesale chemist, one chemist not in business, four pharmaceutical chemists, and four out of the twenty members of the United Society, a resolution was adopted condemning the United Society's bill upon two or three trifling matters of detail, and our local secretary in consequence refused to return the United Society's bill signed or unsigned.

This was the first cause of dispute between the metropolitan and local secretaries.

However, after a few days the bill was sent round, and signed by most of the trade, as the alterations made were of too trifling a character to be worth disputing; but much to my surprise, and that of some others, the petition was found to have been sent to the Home Secretary instead of to the United Society.

This being the case, can you wonder if Mr. Buott did feel hurt at the withdrawal of the petition, and the apparent influence of the York Society at such a crisis? Had other towns followed the example of York, where would the United Society have been at the present moment?

On the occasion of Mr. Buott visiting York in the autumn (as mentioned in Mr. Brown's letter), I was one of the three chemists who attended the meeting. Mr. Buott commenced by saying that he wished by-gones to be by-gones, and although, when it was forced upon him, he gave way to some warm expressions of feeling, my conscientious conviction was, and still is, that he was in the right, and this was the opinion expressed to me, on our way home, by the only other member of the trade present, and I believe would have been the opinion of any unprejudiced person who had heard both sides of the question.

The morning after this meeting Mr. Buott called at my shop, and stated he had just seen Mr. Brown, and in my presence, and in the presence of the chairman of the York

Association, he distinctly stated his wish to forego all personal feeling, and that, for the good of the Society, he was willing to come over to York in a fortnight's time, if a meeting could be got together, and goodwill established amongst us all. His offer was never met.

I quite remember, on the evening in question, Mr. Buott telling Mr. Brown he was no longer local secretary, but my own opinion is that he ought never to have been allowed to continue in that office after forming an independent association. I was, therefore, only surprised that the dismissal had been delayed so long, and I considered this delay as rather a weakness on the part of Mr. Buott.

Until I am better informed, I shall always consider that if the United Society has done, or is doing anything for the welfare of the trade, it is due to the exertions of its secretary; and although I have carefully looked through every number of your journal for the last few months, I cannot find anything brought forward by his opponents which would warrant us in thinking less of Mr. Buott than we have hitherto done.

I find no fault with Mr. Buott's circular, or with his "Danger Signal" (as they read in your columns). I think it appears pretty clear that the interests of the Society demanded something of the sort. Mr. Buott is the officer of a society, not of a small clique of that body.

Now, referring to the 5th Annual Meeting of the United Society as taken by an impartial reporter of the public press, it certainly seems that it was almost a unanimous opinion that a majority of the Executive Committee were opposed to the best interests of the Society, whilst nothing, so far as I could make out, was brought against Mr. Buott. Now, as I cannot believe that either the secretary of the United Society, or any other man, can so influence a public meeting as to make a number of independent men all say and vote as he wished, I am obliged to believe that his opponents felt there was no chance of substantiating any charge, and therefore preferred attacking him by a circular which he had not much chance of contradicting.

I am not ashamed to avow that, whilst advocating, as I ever have done, that any offers of liberal concession from the Pharmaceutical Society should be met in a kindly and conciliatory spirit, yet I have the greatest contempt for the cowardice and vacillation which I firmly believe has been the cause of keeping the pharmaceutical body in its present unyielding attitude, and it is my firm conviction that this is the rock, if any, upon which the Society will be split.

In conclusion, I beg to say that I hope some plan may be thought of by which these unseemly differences may be brought to an end; and I would suggest to all district associations that instead of letting the opinion of a small number who may happen to attend a public meeting be expressed either for or against any proposition, it would be more honourable first to communicate with all the absent members, and endeavour to learn their views. Honesty is the best policy in this as in other affairs of life, and the want of this has caused much diversity of feeling in many towns.

Yours respectfully,

WM. CHAS. HAYLAND.

21, High Ousegate, York.

August 29th, 1866.

THE ANNUAL MEETING OF THE UNITED SOCIETY.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

DEAR SIR,—As the Report of the Annual Meeting of the United Society of Chemists and Druggists in your paper is, by an "Independent Reporter," neither side of the, at present, dis-united Society, can call in question its correctness. Accepting it, therefore, as an accurate statement of what took place at the Society's rooms in London, July 19, 1866, I cannot help thinking that many of the gentlemen who spoke on the occasion were not very particular regarding the accuracy of their statements. With your permission I will try and point out where I think they were wrong; and why it is, the present Executive Committee are not likely to benefit the Society.

The first resolution moved was, "That it was incompatible with the independence and prosperity of the United Society

of Chemists and Druggists that the representatives of any trading company, etc." *Incompatible with the independence!* Surely, there is some mistake here; for the late Executive refused to again serve on the Committee, and severed their connection with the Society, because, through the intrigue and domineering conduct of a few of their body, they were unable to protect their independence. Looking at the transactions of that portion of the Executive Committee affected by the resolution, during their year of office, it is evident to the most casual observer that the animus displayed against them was not because they belonged to a trading concern, but because they refused to subject themselves to the dictation of a paid servant. If these gentlemen had quietly acquiesced in the policy propounded by the minor portion of the Executive, instead of working for the welfare of the whole body of chemists and druggists, Pharmaceutical or non-pharmaceutical, we should never have had the disputes which have arisen, and culminated in the adoption of the above resolution: and I do not think that resolution would have passed had there been a few more *independent* gentlemen present at the meeting. The resolution then resolves itself into a party cry, for party purposes.

It is curious to study the collateral branches of this precious resolution, and the accusations brought forward by the Buott faction.

1st. The retiring members are accused of attempts, or intended attempts, to betray the United Society of Chemists and Druggists to the Pharmaceutical Society, in order to sell the latter drugs. Can this be true? Our independence surely runs no risk of being bartered and bottled with black draught! According to Mr. Buott, jun., the Pharmaceutical Society's members will not take physic without the sugar plum, consisting of one guinea, from every poor outsider. This is simply absurd. Judging from the past efforts of the late members of the Committee, on behalf of the Society, nothing could have been further from their thoughts; but I believe that could they have brought about an amalgamation with the Pharmaceutical Society, based on a footing of equality, it would have been hailed with delight by every member of the United Society having the advancement of the trade at heart. To my mind, then, it appears that the point at issue between the late members of the Executive Committee savours more of self-interest than mere opposition to a number of gentlemen who happen to belong to a trading community.

In the second place, these gentlemen are accused of shelving a proposition of a Mr. Dobb, of Sheffield,—that a journal should be started, devoted to the interests of the Society—because it would destroy the profits and ruin their own, which was supported by advertisements only. There can be no doubt that the Committee opposed this proposition simply because they felt that it would only advance one-sided views, and promote only the opinions and principles of a faction.

So much for resolution No. 1. The next of consequence is—That no gentleman, who is not a *bona fide* chemist or druggist, shall be a member of the Executive Committee. And, with respect to this, Mr. Hornby wonders how his Birmingham friends could be induced to bring forward such a resolution. I think I can enlighten him. They were not "induced;" but acting independently of any exterior pressure, they were determined to do that which, in their opinion, would restore unanimity to the Society, and support those men who they believed were working for their benefit.

Had the resolution passed, one important element of discord—the interference of Mr. Buott, jun.—would have been removed.

Passing on, our new friend—Mr. Potter, of Greenwich—wanted an explanation of what he knew to be a fact,—that until the Drug Company was instituted, there was no dissension in the Executive Committee. No explanation appears to have been given; but condemnation was pronounced without waiting for the explanation, and endorsed by the succeeding speaker. I, like Mr. Potter, ask for an explanation. As regards Mr. Buott, sen., no one, I am sure, wishes to ignore the great and signal services he has conferred on the Society. We do not want to lose his services; but what we do want from him is, that he will control that unfortunate infirmity—temper. Could he do this, he might continue still "the right man in the right place," and earn the respect and gratitude of every member.

These remarks, Mr. Editor, are not made with any bias towards either party; but I think some voice should be raised to prevent the breaking up of a Society whose career has been so rapid and prosperous, for, if the unfortunate dissensions now existing do not cease, members will lose all confidence, and utter dissolution will be the result.

Yours obediently,

C. PACKWOOD,
Hon. Sec. of the Birmingham
District Association.

September 8, 1866.

THE FIFTH ANNUAL REPORT OF THE UNITED SOCIETY.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—At the request of the Executive Committee of the United Society, I have waited patiently until they have brought forward, in "the spirit of conciliation," an exposition of the steps they are about to take; and after a careful perusal of the report which has fallen into my hands, I am at a loss to understand how this conciliatory exposition affects any opinion based upon the circular issued by the members of the late Executive Committee. The only apparent reference to our circular, is a statement signed by sixteen gentlemen (nine or ten at least of whom are total strangers to the past struggles between the Executive and the Secretary), to the effect that there had been issued "erroneous statements tending to produce an injurious impression upon the minds of those who may not be fully acquainted with the facts of the case." Now, sir, I should like to know how the nine or ten gentlemen, who know nothing, and four or five others who know very little, can be competent to declare the late Executive wrong, and their Secretary a faithful and obedient servant.

Whatever excuse may have been given for Mr. Buott, jun.'s intemperate remarks upon a trading company at the Annual Meeting, their reproduction in a widely-circulated report, savours more of vindictiveness than of conciliation. And Mr. Hornby, who professes so great a horror of keeping alive discussion will, I dare say, heartily approve of this, as it is at his townsman's suggestion that these scandals should be again circulated.

The conciliatory spirit, sir, even extends to yourself, and the interesting pamphlet abounding in milk and honey, brings Mr. Anderson's £1000 to mind. After the kindly intimation that it will become a question what can be done to neutralize your injurious influence, you will perhaps fear to assert your independence as the editor of the CHEMIST AND DRUGGIST.

As for the future policy, I find it nowhere indicated, except in a statement that the Executive Committee have assumed the right to initiate every course of action, and to judge upon all subjects affecting the interests of the society; to hold undisputed control over the officers; to revise all matters of detail relating to the working of the Society, and to bear the general responsibility. Why, sir, the late members of the committee resigned because they could not freely exercise these rights. It is to be hoped that the new committee will be able to accomplish that which the late one failed in.

In what does the conciliation consist? By opening the whole question of dispute between the members of the Drug Company and the Messrs. Buott. After the latter have succeeded in causing the former to withdraw, they—not content with this result—adopt an unusual course, and print the whole of the acrimony of the Annual Meeting in the official report, and distribute 3000 to 4000 copies throughout the country, with some additional letters which coolly deprecate any further discussion, and invite the gentlemen who are thus insulted to fill up the vacancies in the committee. The conciliatory spirit which is said to animate the present executive, appears to me as great an enigma, as convening an annual meeting to reinstate a secretary, and then forgetting to do it.

I am, sir, yours truly,

Sept. 11th, 1866.

THOMAS D'AUBNEY.

MR. BUOTT'S LETTER.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—Mr. Buott has commenced the letter published in last month's number with so great a misrepresentation that I beg you will allow me to correct it. He says, "that a printed circular is being distributed amongst some of the members of the Society, signed by the TEN gentlemen of the Drug Company who were formerly upon the Executive Committee." This statement Mr. Buott knows to be incorrect, as he is well aware that, although I am one of the TEN whose signature appears to the circular, I never have had any dealing of any kind with the Drug Company. Indeed, I was not acquainted with any of its directors or shareholders until I met some of them at the meetings of the Executive Committee of the United Society of Chemists and Druggists. Consequently, my opinion of the state of the Society, and of Mr. Buott's conduct, has not been biased by any connection on my part with the Drug Company. I will not enter further into a denial of the statements made in Mr. Buott's letter, because there are several gentlemen who, from their longer standing in the Society, are better qualified to refute his errors.

I am, Sir,

Yours truly,

WM. BICKNELL.

38, Ebury Street, Pimlico.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—Permit me to say a few words in reply to Mr. Buott's letter in last month's Journal. He states it to be incomprehensible to him who could have hindered the free exercise of authority of the late Committee of chemists and druggists. To us who regularly attended the monthly meetings, it seems plain enough, when we consider that he generally put himself into direct antagonism with a large majority of the Committee, and created much unpleasantness by intemperate language and conduct. He may have been actuated by a desire to discharge his duty with credit, but had a peculiar way of acting, not at all times agreeable to those working with him. How he came possessed with the notion that he was, in addition to Secretary, supreme authority over the chemists and druggists of the United Kingdom I do not know; but that seemed uppermost in his mind, hence the difficulties we complained of. He requests us to point out one case when he did not promptly attend to the instructions of the Committee. Your space being valuable this month, I will, at present, give one illustration only. Soon after last Christmas the Committee deemed it desirable that the accounts for 1865 should be cleared up. A day was appointed when they should be laid before the Committee, giving the Secretary two months to put them into proper order. The evening before the day appointed, he gave the members notice his papers were not ready; but that being the usual committee day, eight or nine gentlemen, including the President, met at the office in Ormond-street, when Mr. Buott positively refused to produce the minute book, or allow a meeting to be held.

It is a mis-statement where he says the ten gentlemen were rejected by the Annual Meeting to serve on the Committee. The fact is, as you, Sir, correctly stated, *we refused* to act when proposed to be elected by a meeting packed with the Buott interest, apparently for the avowed purpose of disparaging the work of the old Committee.

With respect to the revival of late dissensions, the Committee agreed, previous to the Annual Meeting, to forget Mr. Buott's hostility, hoping to work more harmoniously in future. What was the result? Half an hour after, when the Annual Meeting assembled, printed papers were distributed, containing most disgraceful personal attacks on a large portion of the Committee. Again the speech delivered by Mr. Buott, jun., was full of misrepresentations. Thus, the Messrs. Buotts themselves revived the dissensions, and brought the Society into a state of collapse.

Mr. Buott complains of the antagonism of ten gentlemen. Had he performed his Secretarial duties without assuming dictatorship, and entering into intrigue, as shown in the

"Danger Signal," no dissension between the Secretary and Committee would have been heard of.

I remain, Sir,

Yours respectfully,

1, Churton-street, Pimlico, S.W.

H. KING.

PERSONAL EXPLANATIONS.—INCORPORATION OF THE TRADE.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—As Mr. Bicknell, who is neither a shareholder nor a customer of the "trading company," and with whom I have but a slight acquaintance, has considered it proper to publish the "danger signal," I desire that the letter which I forwarded to Mr. Buott, asking for an explanation privately, and in which I expressed my intention to reply to his statements, should also appear in your columns, as it has been read before several district meetings.

It is not my intention to engage further in controversy with either Mr. Buott or his son. I have no desire to recall those expressions which the secretary of the United Society has referred to, for when they were made he was a most obsequious servant. When I gave him and his son praise, they deserved it, and when I proposed Mr. C. F. Buott as a honorary member of the Executive, it was with the same desire to serve the trade that lately induced me to propose his removal. I am prepared to stand by every statement in the circular bearing the signatures of the late seceding members of the United Society, which Mr. Buott denies with such a pathetic air.

If it concerned myself only, I should pass unnoticed the heap of abuse that was poured upon the "trading company" for party purposes, by and at the instigation of the late secretary of that company, but as a trustee for hundreds of the trade who have invested capital in a co-operative scheme for purchasing their goods wholesale—I do, on their behalf, beg permission to make some remarks in reference thereto. No one will doubt that if Mr. C. F. Buott had remained secretary of the Drug Company, Limited, there would not have been one word uttered against that commercial undertaking, but it became a necessity that his connection with it should cease, and no one will read Mr. C. F. Buott's remarks without detecting the most splenetic motive in every expression. By these remarks a false assumption was raised, and in the passion of the hour partizans were blinded to the truth. The seven members of the trading company were represented as members of a private firm, being personally interested above other members of the body in its welfare, when, in fact, they were simply the representatives of hundreds in the trade whose interests are identical. The directors are chemists, who have for six years laboured to bring the trade together, legally, socially, and commercially, besides raising in it a spirit of benevolence for the needy. The United Society was the result of their first efforts, and that is approved because it provides a living for the elder Mr. Buott. But the Drug Company, intended to benefit the trade commercially, is condemned because the younger Mr. Buott is no longer supported by it. The hundreds interested in the Drug Company are also affected by the prosperity of any society which studies their legal position; and as the one had for its management the same members as the other, the trade was profited by the circumstance. The Drug Company was not instituted for the benefit of the Directors in a greater degree than for other members of the trade who choose to increase their profits by working with it. Without touching upon the false implications in Mr. C. F. Buott's advocacy of what was termed "Mr. Yeats's resolution," I will depend upon the inconsistencies and absurdities therein, to prove to shareholders how fortunate it is that one is removed who, having received handsome remuneration for services, can in a few months after do his utmost to destroy the company he was, until lately, a member of. It was a short-sighted policy to say the least of it. Perhaps by this time the seeming victory of the 9th has paled. The trade will reflect, and rather trust those of their own flesh and blood than aliens.

Pardon me for dwelling so much upon this subject. It is

not my intention again willingly to do so, for I am sure both you and your numerous readers must be tired of these disputes between the Messrs. Buott and contending parties. There is a common ground on which we ought all to stand, and that is the Incorporation of the Trade. Although the United Society was intended for that purpose, it is not improbable that the disunion may hasten the much-coveted incorporation. The one thing necessary is concord—that the pharmacist and outsider should be able to join hands and appeal to the legislature as friends. In the United Society there is, unfortunately, an element directly and strongly opposed to this desirable attainment, and as long as it continues the trade will be kept at enmity, and the incorporation will be a distant vision. Experience has taught us what fiery declamation and incessant warfare will do. It raised two powerful parties, determined to oppose each other to their common injury. We have also discovered what temperate argument, courteous discussion, and friendly counsel will effect. The proceedings of the British Pharmaceutical Conference at Bath, Birmingham, and lastly at Nottingham, have proved how men of all opinions, yet having one main object in view, may appreciate each other when they meet together; how the smaller lights may mingle their effulgency with that of the stars of greater magnitude, and be welcomed as parts of the same system, and separate more enlightened in science, more liberal in sentiment, more exalted in business views, more genial in companionship, with the contracted notions of class considerably modified, if not entirely removed. Any obstruction to the incorporation of the trade next session should be upset. An understanding should be arrived at during the next few months. This is not a matter to bolster up sections, for it concerns all alike. The Pharmaceutical Society has hitherto failed from assuming a dictatorial tone, which it is not likely the trade will submit to, but it may yet fulfil its mission if it will approach non-members in a proper spirit. If it will consult with them, and ascertain their requirements, then it may obtain the support of every educated druggist; but if it attempts a monopoly, and offers to legislate without consulting those who will be affected by legislation, then it may expect a greater opposition from the general body of the trade than it has yet experienced.

The Council would do well to take heed of what has occurred in another society, and not carry the spirit of conservatism to such extremes as to cause dissatisfaction among its own members. A spirit of liberalism is awakened throughout the country, and pharmacists justly complain in the provinces that the Council, as at present constituted, does not represent them. The whole trade desires a general registration on a broad basis. It is indifferent by whom that is effected, provided existing rights are preserved, and no invidious distinctions made. Pharmacists desire an end to the petty jealousies, fostered by a false distinction; outsiders wish to close the trade; and every advocate for the chemists' future advancement should give support to a LEAGUE formed for the sole purpose of incorporating the trade, leaving district associations to arrange such matters as concern their localities.

I am, Sir, very obediently yours,

JOHN WADE.

September 3rd, 1865.

(COPY.)

100, York-street, Westminster,
May 14th, 1866.

MR. BUOTT.

SIR,—I have recently received from some person, either known or unknown to yourself, a copy of a printed address to the members of the United Society, signed by yourself, at the office of the Society, having in conjunction with it a second address, termed "The Danger Signal," signed "Vigil," and bearing date Nov. 13th, 1865. It is certainly specified in one corner as "strictly private," but I do not and cannot receive it as such, as it contains remarks disparaging to myself and other members of the Executive. I wish you, therefore, to understand that I intend to give publicity to it, with my own comments upon it, and it is open for you to explain the circumstance of its issue. On the 7th of December, 1865, you are reported in the CHEMIST AND DRUGGIST, vol. vi. p. 182, to have stated (in reply to some remarks of my own and others at the Executive meeting) as follows:—
"The Secretary denied that a circular had been sent out; he had written private notes to a few friends, and had acted just as any gentleman on the committee might have acted," etc. With this extract before me, I am unable, without your assistance, to understand how this address should be dated November, 1865; and being partly responsible for the remuneration you obtain for your services, I shall be glad to learn how it is that up to Jan. 7, 1865, you received only £228 7s. 6d., when

the annual balance sheets represent a far greater sum as being paid to you for services, and expenses incurred whilst travelling.

The following statement is from the reports; and as your address was written in Nov. 1865, I do not recognize a correctness in both. Neither in the view of the two pictures do I find any illustration of apartments, coals, gas, etc., which I presume are of some slight advantage, and in striking a balance should be taken into account:—

Mr. Buott's Salary.			Travelling Expenses.			Mr. C. F. Buott's Salary.		
£	s.	d.	£	s.	d.	£	s.	d.
1861.	47	0	0	..	47	0	0	..
1862.	72	10	4	..	..	42	0	0
1863.	97	17	0	..	43	4	6	..
1864.	102	15	0	..	72	13	3	..
1865.	170	12	10	..	36	19	6	..
Salary	£490	15	2	..	£199	17	3	..
Travelling	199	17	3	..	..	£203	0	10
Total	£690	12	5	..	..	£690	12	5
						203	0	10
						£893	13	3

To Membership Fees, Donations, and Subscriptions from formation of Society to Dec 31, 1865			By Salaries and Travelling Expenses to the Messrs. Buott, same period		
£2,209	..	..	£893	13	3

The "*veni, vidi, vici*" style, which in the secret address displays itself, will be readily understood by those who read it, and will afford considerable amusement to many. I have no desire to criticise the taste displayed, but simply to combat statements inconsistent with facts.

I cannot admit that any "necessity" existed for you, in "the face of an annual meeting," to distribute privately to some members of the Society a document defaming other members,—and those members who have been consistent supporters from the first, and without whom, your position would long since have become empty space.

If you had a grievance to complain of, it should have been stated at the general meeting, and the Executive could then have enlightened country delegates and town members on the true state of the case. As a member of the Executive, giving your labours for nothing, you might have challenged the views of your opponents, and debated on their Pharmaceutical proclivities; but as an official of the Society, you took upon yourself an assumption that I for one would not allow to pass unproved. For a long time past you have exhibited an hostility towards certain members, recognisable by the initials "B, and C, and H, and D, and K, and P, and W," whose interest in the well-being of the trade cannot be doubted. Presuming that you, with your desire to agitate and work independently of the Pharmaceutical Society, are as sincere and disinterested in your motives as those who desire to avoid antagonism, by what right do you cast aspersions on your Executive Committee, as appear in this respectable paper, aptly termed "The Danger Signal?" But what is the danger apprehended? Not harm to the Society, but to the individual.

It reads to me as the wail of one fearing the loss of a profitable situation; the most deplorable effort I ever witnessed of one seeking his own good rather than trying to further the objects of an institution.

It seems to me a pitiable cry, that certain members perceive the necessity for carrying out a conciliatory policy to effect a certain object, and would sacrifice you, they being indifferent to your past services, for the good of the trade and their own vanity. To a certain extent, as far as I am individually concerned, this may be true. I have always worked for the benefit of the non-pharmacist. My opinions are recorded and well known, and I believe are in unison with most of the respectable outsiders. Our object in subscribing to the United Society, in giving our thoughts and time, in agitating, is to incorporate the trade, and not to make the United Society a permanent institution for your special benefit, or that of any other. I am willing that our members and the trade should see the charges you have secretly circulated amongst those you imagine you could influence, and leave them to judge who are most likely to study their welfare. What do we gain by our loss of time? If I consulted my own convenience or pleasure, as well as my pecuniary interests, should I prefer the bickerings and strife that I am compelled to pass through, to using my time more profitably and enjoyably? Much as I might desire this, my early association with the Society, my labours over it will not allow me to see it sacrificed to private ends,—dictated to or governed by those, who would be the shadow of your own brain and the echoes of your voice. As long as I have a seat on the Executive, and receive the support of the majority, I will pursue my own course; but, those "whose fingers are not innocent of pitch or drug" reject me, then, *unlike* yourself, I shall be neither "tongue-tied" nor "nearly heart-broken."

I am, Mr. Secretary, one of the Executive,
JOHN WADE.

EARLY CLOSING.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—I beg to signify my entire concurrence with the views expressed by the writer of a letter in your last month's issue, concerning early closing.

At the present day, the life of a chemist's assistant is beyond measure cheerless and unattractive, and it is to be deplored that many young men of highly intellectual capabilities, eminently adapted to adorn the profession, are turning in disgust from the dreary and monotonous routine of the dispensing counter, to other and more grateful spheres of labour.

Surely means may be devised whereby our hours of labour may be curtailed, and time allowed us for study, exercise and healthy relaxation, thus removing what has hitherto cast

disfavour upon, and constituted the chief objection to our profession, namely, long hours, close confinement, and Sunday duties.

I suppose this continuation of evils must have been borne in mind by a group of drapers' assistants, as they were gazing at the employes in a chemist's shop in Oxford-street the other evening, for in passing, I heard one of them remark, in a tone of contemptuous pity, "Poor devils!" "Shades of the departed; we must indeed be fallen, that e'en the wielder of a cloth measure can afford to pity us," thought I, as I turned into Cleaver's for a bottle of Ramsbottom's Corn Solvent.

I came to London in the hope of so far perfecting my studies, that I might present myself with confidence before the Board of Examiners of the Pharmaceutical Society. Instead of this, I have lost my health, and I grieve to say, am as far as ever from the attainment of my object.

I have no wish to harp upon my own individual grievances, but give the following details as admitting of pretty general application.

I commence my duties shortly after 7 a.m., and, save the short intervals at meal times, am actively engaged with head and hands until 10 p.m., at which hour the shop is partially closed, and I am enabled to relieve my locomotive members by means of a cane-bottomed chair. I strive to struggle through a few pages of "Galloway," but, "in vain, alas, the endeavour," I am so thoroughly wearied, literally "used up," that I can scarce muster energy enough to get through a chapter of "Pickwick," much less attempt to brace up my mind and concentrate my thoughts for study.

About every ten minutes a customer requires attention, and thus the hour soon passes, until 11, when we put out the lights, and bid the Pharmacopœia a brief adieu. Unfortunately I suffer from unpleasant dreams, a natural consequence of imperfect digestion. Therefore, when the morning bell sounds, I arise languid and unrefreshed. Now, with the shutters up at 9 on the previous evening, and a good brisk walk to stimulate my internal organization, I should feel widely different.

It is frequently half-past 12 before I retire on the Saturday night, yet I am expected to be on parade at 8 on the Sunday morning; close again at church time, but have to be at my post from 6 to 11 in the evening.

I am convinced there is no real necessity for this state of things, and that by a co-operative movement amongst our employers, our condition might be greatly ameliorated, and our lives rendered far more endurable.

We do not expect to put away our pill-machines at noon on Saturdays, and, like the gentlemen on the other side the street, who preside over cashmeres and silks, adjourn to some suburban green, there to pitch the stumps, and exercise our arms and legs in the good old English game of cricket. All we crave is a reasonable hour of closing, and a modification of Sunday duties.

Were this reform carried out, I venture to assert that it would redound to the benefit of our employers (we should not be found ungrateful), and they would never have cause to regret having accorded to us what is dear to all—"Liberty."

Hoping that brighter days are in store for us, and apologizing for having presumed to trespass so far upon your valuable space,

I have the honour to remain,

In behalf of many, respectfully yours,

PODOPHYLLIN.

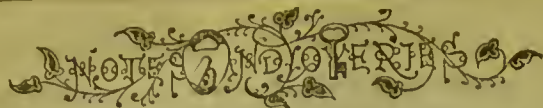
GAZETTE.

BANKRUPTS.

BREAKELL, GEORGE, Garstang, veterinary surgeon.
COUPE, WILLIAM, South Shoebury, Essex, chemist.
DAVIES, BENJAMIN JOHN, Cefn-coed-y-cymmer, Brecknockshire, chemist.
GIBSON, G., Kirkby Bretoth, Lancashire, surgeon.
GRAVES, A. B., Willington, Durham, surgeon's assistant.
SEYMOUR, GEORGE, late of Tottenham-court-road, chemist.

PARTNERSHIPS DISSOLVED.

DOLBY and SEAMAN, Manchester, druggists.
HARVEY and LOWE, Lincoln, surgeons.



A Subscriber.—We extract the following formula from Mr. Cooley's new work, "On the Toilet and Cosmetic Arts" (Hardwicke), which will be reviewed at length in an early number:—

"LIME JUICE AND GLYCERINE FOR THE HAIR;" "GLYCERINATED LIME JUICE," ETC.—Of the many articles recently vended in bottles under these and similar names, the best are prepared as follows:—Take of—

Lemon-juice (or Lime-juice)	1 pint;
Rose-water (or Elder Flower-water) ..	1 fluid ounce.
Rectified Spirit (added gradually) ..	2 1/2 fluid ounces.

Agitate them well together. After 24 hours' repose, decant or filter through calico or muslin, and further add, of

Glycerine (Price's)	2 1/2 ounces;
Oil of Lemon (or <i>œdrat</i>)	1/2 drachm.

Lastly, again agitate them together for some time. It should be somewhat milky, but quite free from any coarse floating matter or sediment. It is much puffed for its assumed power, which only exists in the label, of removing and preventing scurf, promoting the growth of hair, superseding the use of hair-oil, etc. In the commoner kinds the spirit is omitted, and only 1 ounce of glycerine used, the place of the portion of the latter omitted being supplied by honey or sugar, and the risk of fermentation prevented by the addition of a few drops of oil of cloves, or by previously exposing the lemon-juice to the fumes of sulphur. Sometimes for the last purpose even a few drops of oil of vitriol, or 10 or 12 grains of corrosive sublimate are added.

"*Verité.*"—1. The proportions can only be determined by experiment. 2. Two glass beakers, one containing oil of vitriol and the other quicklime, are often placed in the cases of delicate balances.

G. Manby (Southampton) states that he has tried many of the published processes for coating pills to render them tasteless without success, and would feel obliged if any one would recommend him a good plan.

"*Crick*" having recently entered upon a grocer's and druggist's business in a village of some 3,000 inhabitants, after serving his apprenticeship in the grocery trade, finds, to his great annoyance, that some drugs are known by two or three different names, and is often compelled to say that he has not got an article asked for because it is called by an unfamiliar name. He politely requests us to recommend him a book that would teach him the different names of drugs, and explain their properties and uses. We fear there is no royal road from grocery to pharmacy. There are, of course, many treatises on *Materia Medica*, which might be of some use to him—such as "Royle's Manual," published by Churchill—but it is quite possible that the superficial knowledge acquired by perusing a single book might increase the danger to which the inhabitants of his village are now exposed.

A Curious Advertisement.—We call the attention of our readers to an advertisement under the head of "Businesses for Disposal," commencing "A Fortune For A Proper Medical Man." Being desirous of doing full justice to our client, we print it *verbatim et literatim*, for, as Thackeray's Jeames remarks, "Every gentleman has an orthography of his own."

MEDICINAL PREPARATIONS OF CARBOLIC ACID.—Our attention has recently been directed to some carbolie acid lozenges, which are said to possess singularly efficacious properties. Their flavour is not too powerful to prevent their being used under circumstances where the antiseptic properties of carbolie acid are required internally, whilst they are sufficiently biting on the tongue to prevent their being consumed as a sweetmeat should the bottle containing them get into the hands of children, young or old. When carbolie acid is required for medicinal use, we think that these lozenges will afford a particularly convenient means of its administration. —*Chemical News.*

TESTIMONIAL TO DR. EDWARDS.—It being generally known that Dr. J. Baker Edwards was about to take up his residence in Montreal, and several of his friends having expressed a desire that a compliment should be paid him prior to his departure, a meeting took place on Monday the 20th ult., and after some deliberation the following resolution was

unanimously agreed to:—"That this meeting approves of the suggestion of the presentation of a time-piece or some other *souvenir* to Dr. Edwards, on his departure to Canada, as a token of the esteem of his friends in Liverpool; and that a committee, composed of Dr. Ginsburg, chairman; Dr. Nevins, treasurer; Rev. Wm. Banister, Rev. Enoch Mellor, Messrs. John Abraham, Henry Walter, and John Shaw, be authorized to make arrangements for carrying out the above object."

THE ROYAL EXHIBITIONS to the Royal School of Mines, Jermyn-street, and the Government School of Science, Dublin, consisting of £50 a year for three years, and free admission to the respective schools, which are awarded by the Science and Art Department after the May Science examinations, have this year been awarded as follows:—Those to the Royal School of Mines to German Green, aged 14, monitor at the Lower Islington Public School, and Frederick J. M. Page, aged 17, son of a carriage builder, London. Those to the Government School of Science have been gained by Charles G. Stewart, aged 16, chemist, Camden Town, London; John M'Allan, aged 22, chemist's assistant, Dublin; and Stewart Williamson, jun., student of the Royal College of Chemistry, London.

SERIOUS ACCIDENT THROUGH THE BURSTING OF A SODA WATER BOTTLE.—A youth named Abraham Tebay, about fifteen years of age, in the employment of Mr. H. W. Mackereth, druggist, Ulverston, was lately engaged in making up a packet of Schweppe's soda water, for despatch to the country, when one of the bottles suddenly burst, and a portion of the broken glass flew with considerable force against his eyelid. Such, indeed, was the violence with which the glass came into contact with Tebay's eye that the lid was completely cut through, and the sharp edge of the glass entered the ball of the eye. The assistance of Dr. Barber was immediately obtained, and all was done that medical skill could suggest; nevertheless, the doctor expressed great fear that he will not be able to save the patient's eyesight. In other respects the youth is doing well.



ALTHOUGH the rate of discount has been reduced to 5 per cent., business has not much improved in Chemicals, buyers showing a disposition to take only sufficient for their immediate wants, prices in many instances are again in favour of the buyer. A moderate trade has been done in Tartaric Acid at 1s. 3 1/2 d. to 1s. 4 d. More doing in Citric Acid at 1s. 10 d. to 1s. 10 1/2 d., and now held for 2s. Oxalic Acid is in fair demand at 11 d. to 11 1/2 d. Sal Acetos is quiet at 13 d. to 13 1/2 d. Bichromate of Potass in fair demand at 5 1/2 d. to 5 3/4 d., less 5 to 7 1/2 per cent. discount. Prussiate of Potass dull at 13 d. to 13 1/2 d. Chlorate is quiet at 13 d. to 13 1/2 d. Quinine is lower and dull, small sales of French made at 4s. 6 d. to 4s. 7 d. English is quiet at 5s. to 5s. 1 d. Large sales made in Soda Ash at from 2 1/2 d. to 3 1/2 d., according to quality. Crystals are quiet at 117s. 6 d. to 120s., ex ship. Bicarbonate quiet at 16s. 6 d. to 17s. 6 d., and Caustic at 18s. 6 d. and 25s., according to quality. Alum is firm at £7 10s. in tierces, and £7 15s. in barrels. Flour of Brimstone is quiet at 12s. 6 d. to 13s., and Roll 9s. 6 d. to 10s. Cream Tartar is dull at 8s. to 8 1/2 s. A moderate business is doing in Sulphate of Copper at 26s. 6 d. to 27s. 6 d. Sulphate of Ammonia is dull at 11s. Sal Ammoniac is quiet at 35s. 6 d. to 37s. 6 d. Refined Saltpetre is better, and more doing at 25s. 6 d. to 26s. cash, f.o.b. Turpentine is dull at 38s. to 38s. 6 d. Petroleum is lower, sales made at 1s. 11 1/2 d. to 2s. Linseed Oil is less in demand, and the price here is now 41s. 6 d. to 41s. 9 d., Hull 40s., and last three months 39s. 6 d. sellers. Rape rather more in demand. English Brown 40s. 6 d.

* It is a good plan to previously heat the juice, in glass or porcelain, to near the boiling point, as the preparation then keeps better.

In Drugs sales have been rather larger, and there is more disposition shown to buy. Castor Oil, however, is rather lower. Several parcels of Citronelle Oil has been sold at 3½d., being rather cheaper. A large business done in Oil Aniseed, and the price is firm at 9s. to 9s. 3d. Also more done in Oil Cassia at 7s. 6d. to 7s. 9d. Small sales made in new Cod Liver Oil at 7s. 6d. to 9s., and old 5s. to 7s. Timnevelly Senna has sold to a fair extent at 3½d. to 8d. Further arrivals of new China Rhubarb, which have sold at 6d. to 9d. decline on last month's prices. Cutch in good demand, and dearer. Turmeric is also more in request, both on the spot and for arrival, and prices 1s dearer. China and Japan Galls sell more freely at 63s. to 65s. East India Gum Arabic is dearer, good pale selling at 99s. to 100s. Turkey firm. Shellac is rather better. Aloes are without change. Turkey Opium is 1s. to 1s. 6d. dearer; fine 18s. to 19s.; good 17s. to 17s. 6d. Jalap is without change. Ipecacuanha is steady at 11s. 6d. to 12s. Bark sells steadily at full prices. Tonquin Musk is rather dearer. Roll Annatto rather easier. Bees' Wax sells well at £8 5s. to £8 10s. for Jamaica. Sapan stirring. Cubebs are rather easier. Balsam Capivi is rather cheaper. Cardamoms rather easier. Rough Saltpetre is 1s dearer. Camphor is 2s 6d higher. In other goods there is no change.

PRICE CURRENT.

These quotations are the latest for ACTUAL SALES in Mincing Lane. It will be necessary for our retail subscribers to bear in mind that they cannot, as a rule, purchase at the prices quoted, inasmuch as these are the CASH PRICES in BULK. They will, however, be able to form a tolerably correct idea of what they ought to pay.

	1866.	1866.	1865.	1865.
	s. d.	s. d.	s. d.	s. d.
ARGOL, Cape, per cwt.....	70 0	82 6	75 0	90 0
French	56 0	76 0	58 0	83 0
Oporto, red	30 0	32 0	45 0	47 0
Sicily	67 6	70 0	72 6	75 0
Naples, white	66 0	71 0	68 0	76 0
Florence, white.....	85 0	90 0	85 0	90 0
red	77 0	80 0	80 0	85 0
Bologna, white.....	87 0	90 0	90 0	95 0
ARROWROOT..(duty 4½ per cwt.)				
Bermuda...per lb.....	1 0	1 4	1 0	1 6
St. Vincent	0 2½	0 5½	0 2½	0 6
Jamaica	0 3	0 4½	0 3	0 5½
Other West India	0 2½	0 3½	0 1½	0 3
Brazil	0 2½	0 3	0 2	0 3
East India	0 2½	0 4	0 2½	0 3½
Natal	0 3½	0 7½	0 4	0 8½
Sierra Leone	0 3½	0 4	0 3½	0 4½
ASHES...per cwt.				
Pot, Canada, 1st sort	31 6	32 0	29 6	0 0
Pearl, ditto, 1st sort	0 0	0 0	30 6	31 0
BRIMSTONE,				
rough...per ton.....	130 0	0 0	135 0	0 0
roll	190 0	210 0	195 0	205 0
flour	245 0	260 0	245 0	250 0
CHEMICALS,				
Acid—Acetic, per lb.	0 4	0 0	0 4	0 0
Citric	1 10	1 11	1 9	1 9½
Nitric	0 5	0 5½	0 5	0 5½
Oxalic	0 11	0 11½	0 9½	0 9½
Sulphuric	0 0½	0 1	0 0½	0 0
Tartaric crystal.....	1 8½	0 4	1 4½	1 5½
powdered	1 4½	0 0	1 6	0 0
Alum	150 0	155 0	140 0	145 0
powder	160 0	0 0	160 0	0 0
Ammonia, Carbonate, per lb.	0 5	0 5½	0 5	0 5½
Sulphate	220 0	215 0	260 0	270 0
Antimony, ore	180 0	200 0	180 0	0 0
crude	24 0	25 0	24 0	25 0
regulus	34 0	0 0	34 0	0 0
French star	31 0	0 0	34 0	0 0
Arsenic, lump	15 0	15 6	15 0	0 0
powder	6 6	7 0	6 0	6 6
Bleaching powder.....	15 6	16 0	10 0	10 0
Borax, East India refined ..	0 0	0 0	0 0	0 0
British	65 0	0 0	54 0	0 0
Calomel	2 5	0 0	2 8	0 0
Camphor, refined.....	1 6½	0 0	1 4	0 0
Copperas, green	55 0	57 6	50 0	52 6
Corrosive Sublimite, per lb.	1 11	0 0	2 3	0 0
Green Emerald	0 0	0 0	0 0	0 0
Brunswick	0 0	0 0	0 0	0 0

	1866.	1866.	1865.	1865.
	s. d.	s. d.	s. d.	s. d.
CHEMICALS.				
Iodine, dry	0 9½	0 9½	0 5½	0 6
Magnesia, Carbon.....per cwt.	42 6	45 0	42 6	45 0
Calcined.....per lb.	1 6	1 8	1 6	1 8
Minium, red	22 0	23 6	21 6	24 6
orange	32 6	0 0	32 6	33 0
Potash, Bichromate...per lb.	0 5½	0 5½	0 6	0 0
Chlorate	1 1½	1 2	1 0½	1 1
Hydrochlorate...per oz.	0 7	0 7½	0 6	0 6½
Prussiate...per lb.	1 0½	1 1½	0 11½	0 11½
red	1 9½	1 10	1 9	1 9½
Precipitate, red ....per lb.	0 0	2 6	2 9	0 0
white	0 0	2 5	2 9	0 0
Prussian Blue	1 0	1 10	1 0	1 10
Rose Pink	29 0	0 0	20 0	0 0
Sal-Acetos	1 1	1 1½	0 11½	1 0
Sal-Ammoniac				
British	35 6	38 0	35 6	37 6
Salts, Epsom	8 6	9 6	8 6	0 0
Glauber.....	5 0	6 0	5 0	5 6
Soda, Ash.....per deg.	0 2½	0 3½	0 2½	0 2½
Bicarbonate...per cwt.	16 6	17 0	13 6	14 0
Crystals	115 0	120 0	120 0	122 6
Sugar Lead, white ..per cwt.	38 0	39 0	36 6	37 0
brown	27 0	27 6	26 0	26 6
Sulphate Quinine...per oz.				
British, in bottle ..	5 0	0 0	5 3	0 0
Foreign	4 6	4 7	5 0	5 2
Sulphate Zinc.....per cwt.	0 0	0 0	14 6	15 0
Verdigris.....per lb.	0 11	1 0	0 11	1 0
Vermilion, English	2 9	3 2	2 11	3 3
China	3 4	3 6	2 10	0 0
Vitriol, blue or Rom. per ct.	26 0	27 6	26 0	27 0
COCHINEAL, per lb.				
Honduras, black	3 0	4 6	3 2	5 0
silver	2 0	3 8	2 10	3 5
Mexican, black	3 3	3 7	3 2	3 5
silver	3 1	3 3	3 1	3 2
Lima.....	0 0	0 0	3 1	3 2
Teneriffe, black.....	3 3	4 3	3 4	3 11
silver.....	3 3	3 6	3 2	3 3
DRUGS,				
Aloes, Hepatic ....per cwt.	100 0	180 0	100 0	190 0
Socotrine	140 0	290 0	160 0	290 0
Cape, good	36 0	39 0	41 0	43 0
inferior	20 0	35 0	25 0	40 0
Barbadoes	50 0	280 0	40 0	300 0
Ambergris, grey ....per oz.	30 0	35 0	22 0	24 0
Angelica Root ....per cwt.	0 0	0 0	22 0	35 0
Aniseed, China stor.....	73 0	76 0	170 0	175 0
German, &c.	26 0	40 0	24 0	40 0
Balsam, Canada ....per lb.	1 8	0 0	0 10	0 11
Capivi	1 8	1 9	1 7	1 9
Peru.....	5 6	0 0	4 4	4 6
Tolu	2 6	2 7	3 0	3 2
Bark, Cascarella....per cwt.	18 0	29 0	24 0	34 0
Pern, crown & grey per lb.	1 2	2 3	0 9	2 0
Calisaya, flat	2 6	2 9	2 2	2 9
quill.....	1 10	2 4	2 0	2 8
Carthagena.....	1 0	1 6	0 10	1 9
Pitayo	0 9	2 0	0 10	2 2
Red	2 6	13 0	1 9	10 0
Bay Berries.....per cwt.	0 0	0 0	0 0	0 0
Bucca Leaves.....per lb.	0 1½	0 11	0 4	0 9
Camomile Flowers	40 0	120 0	20 0	65 0
Camphor, China	120 0	122 6	92 6	95 0
Canolla alba	40 0	45 0	23 0	33 0
Cantharides	2 5	0 0	2 2	2 3
Cardamoms, Malabar, good	5 3	6 0	6 3	7 0
inferior	3 6	5 0	4 6	6 0
Madras	3 0	4 9	2 9	5 3
Ceylon	3 0	3 9	3 3	4 3
Cassia Fistula....per cwt.	15 0	35 0	23 0	30 0
Castor Oil, 1st palo ...per lb.	0 7	0 7½	0 6½	0 6½
2nd	0 6½	0 7	0 5½	0 6½
inferior and dark	0 6½	0 6½	0 4½	0 5
Bombay, in casks	0 5½	0 6	0 4½	0 4½
Castorium.....	1 0	20 0	1 0	20 0
China Root	20 0	40 0	0 0	0 0
Cocculus indicus	26 0	30 0	27 0	28 0
Cod Liver Oil	4 6	9 0	3 6	6 0
Colocyath, apple ....per lb.	0 7½	1 0	0 7	1 1
Colombo Root ....per cwt.	130 0	160 0	190 0	210 0
Cream Tartar				
French	82 6	85 0	96 0	97 0
Venetian	87 6	0 0	100 0	0 0
grey	80 0	82 6	96 0	92 6
brown	80 0	0 0	85 0	90 0
Croton Seed	250 0	260 0	400 0	500 0
Cubebs	67 8	72 6	89 0	82 6
Cummin Seed.....	17 0	24 0	17 0	23 0
Dragon's blood reed.....	300 0	400 0	210 0	300 0
lump	105 0	280 0	80 0	260 0
Galangal Root	10 6	12 6	14 0	16 0
Gentian Root	17 0	18 0	21 0	22 0
Guinea Grains ....per cwt.	68 0	70 0	62 0	64 0
Honey, Narbonne	50 0	70 0	40 0	80 0
Cuba	26 0	36 0	25 0	33 0
Jamaica	26 0	55 0	28 0	58 0
Ipecacuanha	12 0	12 3	7 6	7 9
Isinglass, Brazil.....	2 0	5 4	1 8	4 6
East India	1 6	4 0	1 0	4 0
West India	3 7	4 2	3 0	3 3
Russian.....	7 6	11 0	8 0	10 6
Jalap	0 9	5 0	1 0	5 3

DRUGS—continued.		1866.	1865.	1865.	1865.	1866.	1866.	1865.	1865.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Juniper Berries . . . per cwt.	8 6	10 0	7 0	10 0	0 0	0 0	0 0	43 0	0 0
German and French . .	0 0	10 0	9 0	10 0	0 0	0 0	0 0	33 6	39 0
Italian	0 0	10 0	9 0	10 0	0 0	0 0	0 0	36 0	36 0
Lemon Juice . . . per deg.	0 0	0 0	0 0	0 0	0 0	0 0	0 0	47 0	0 0
Liquorice . . . per cwt.	75 0	80 0	75 0	80 0	70 0	70 0	70 0	46 6	0 0
Spanish	55 0	75 0	55 0	70 0	50 0	50 0	50 0	47 6	48 0
Italian	3 6	4 0	2 0	2 0	2 0	2 0	2 0	48 6	0 0
Manna, flaky	1 10	2 0	1 2	1 4	1 4	1 4	1 4	77 0	0 0
small	13 0	34 0	16 0	30 0	30 0	30 0	30 0	38 0	0 0
Musk per oz.	12 0	15 0	11 0	10 0	10 0	10 0	10 0	220 0	£ 0 0
Nux Vomica	14 0	19 0	12 0	15 0	15 0	15 0	15 0		
Oplum, Turkey	3 6	7 0	0 0	0 0	0 0	0 0	0 0		
Egyptian	33 0	37 0	29 0	31 0	31 0	31 0	31 0		
Orris Root . . . per cwt.	3 9	4 0	3 0	0 0	0 0	0 0	0 0		
Pink Root . . . per lb.	130 0	135 0	70 0	0 0	0 0	0 0	0 0		
Quassia (bitter wood) per ton	0 4	1 2	0 5	1 1	1 1	1 1	1 1		
Rhatany Root . . . per lb.	2 6	9 0	3 6	9 6	9 6	9 6	9 6		
Rhubarb, China, round . .	2 0	7 0	3 0	7 0	7 0	7 0	7 0		
flat	9 0	0 0	10 0	10 0	10 0	10 0	10 0		
Dutch, trimmed	9 0	10 0	10 0	12 0	12 0	12 0	12 0		
Russian	32 0	36 0	30 0	33 0	33 0	33 0	33 0		
Saffron, Spanish	129 0	130 0	130 0	160 0	160 0	160 0	160 0		
Salep per cwt.	1 0	1 4	1 0	1 4	1 4	1 4	1 4		
Sarsaparilla, Lima	0 11	1 1	0 11	1 1	1 1	1 1	1 1		
Para	0 10	1 6	0 9	1 7	1 7	1 7	1 7		
Honduras	1 0	2 2	1 1	2 3	2 3	2 3	2 3		
Jamaica	9 0	0 0	14 6	15 0	15 0	15 0	15 0		
Sassafras . . . per cwt.	30 0	44 0	30 0	44 0	44 0	44 0	44 0		
Scutmony, virgin . . per lb.	12 0	23 0	14 0	23 0	23 0	23 0	23 0		
second	2 6	0 0	2 10	3 0	3 0	3 0	3 0		
Seneca Root	0 0	0 0	0 0	0 0	0 0	0 0	0 0		
Senna, Calcutta	0 4	0 5	0 4	0 5	0 5	0 5	0 5		
Bombay	0 3	0 9	0 4	1 0	1 0	1 0	1 0		
Tinnevely	0 3	0 9	0 3	0 9	0 9	0 9	0 9		
Alexandria	7 3	0 0	3 0	0 0	0 0	0 0	0 0		
Snake Root	0 0	1 2	0 11	0 0	0 0	0 0	0 0		
Spermaceti, refined	0 2	0 3	0 1	0 3	0 3	0 3	0 3		
Squills	48 0	56 0	16 6	17 0	17 0	17 0	17 0		
Tamarinds, E. India, per cwt.	16 0	33 0	10 0	21 0	21 0	21 0	21 0		
West India									
Terra Japonica—									
Gambier . . . per cwt.	23 6	32 0	21 0	27 6	27 6	27 6	27 6	14 6	15 0
Cutch	26 0	32 0	22 0	24 6	24 6	24 6	24 6	0 0	0 0
Valerian Root, English . .	20 0	29 0	20 0	30 0	30 0	30 0	30 0	0 0	0 0
Vanilla, Mexican . . . per b.	5 0	16 0	20 0	30 0	30 0	30 0	30 0	2 0	2 3
Wormseed . . . per cwt.	0 0	0 0	0 0	0 0	0 0	0 0	0 0	3 3	3 6
GUM—Ammoniac, drop, per cwt.									
lump	40 0	85 0	40 0	85 0	85 0	85 0	85 0	5 0	8 0
Animi, fine pale	210 0	270 0	210 0	220 0	220 0	220 0	220 0	0 0	0 0
bold amber	190 0	220 0	190 0	210 0	210 0	210 0	210 0	0 0	0 0
medium	160 0	180 0	160 0	180 0	180 0	180 0	180 0	0 0	0 0
small and dark	100 0	150 0	100 0	155 0	155 0	155 0	155 0	0 0	0 0
ordinary dark	40 0	97 0	40 0	95 0	95 0	95 0	95 0	0 0	0 0
Arabie, E. I., fine pale picked	95 0	100 0	72 0	80 0	80 0	80 0	80 0	0 0	0 0
unsorted, good to fine . .	72 0	90 0	60 0	68 0	68 0	68 0	68 0	0 0	0 0
red and mixed	55 0	70 0	40 0	55 0	55 0	55 0	55 0	0 0	0 0
siftings	45 0	50 0	25 0	40 0	40 0	40 0	40 0	0 0	0 0
Turkey, picked, good to fine	170 0	220 0	130 0	180 0	180 0	180 0	180 0	0 0	0 0
second and inferior	95 0	100 0	65 0	120 0	120 0	120 0	120 0	0 0	0 0
in sorts	46 0	70 0	32 0	50 0	50 0	50 0	50 0	44 0	46 0
Gedda	61 0	63 0	39 0	40 0	40 0	40 0	40 0	58 6	0 0
Barbary, white	95 0	100 0	58 0	70 0	70 0	70 0	70 0	58 6	60 0
brown	85 0	90 0	42 0	48 0	48 0	48 0	48 0	61 0	62 0
Australian	50 0	65 0	30 0	36 0	36 0	36 0	36 0	55 0	0 0
Assutetida, fair to good . .	30 0	95 0	25 0	55 0	55 0	55 0	55 0	6 0	10 0
Benjamin, 1st quality	300 0	400 0	550 0	950 0	950 0	950 0	950 0	11 0	12 6
2nd	240 0	300 0	440 0	500 0	500 0	500 0	500 0	52 0	0 0
3rd	50 0	240 0	80 0	940 0	940 0	940 0	940 0	0 0	0 0
Copal, Angola, red	80 0	90 0	70 0	80 0	80 0	80 0	80 0	61 0	62 0
pale	85 0	95 0	70 0	80 0	80 0	80 0	80 0	59 0	60 6
Benguela	67 6	80 0	55 0	96 0	96 0	96 0	96 0	73 0	73 6
Sierra Leone . . per lb.	0 4	0 11	0 4	1 0	1 0	1 0	1 0	62 0	63 0
Manilla . . . per cwt.	25 0	50 0	23 0	36 0	36 0	36 0	36 0	140 0	150 0
Dammar, pale . . . per cwt.	52 6	61 0	40 0	52 6	52 6	52 6	52 6	290 0	0 0
Galbanum	200 0	210 0	160 0	170 0	170 0	170 0	170 0	23 0	32 0
Gamboge, picked, pipe	400 0	460 0	190 0	220 0	220 0	220 0	220 0	32 0	36 0
in sorts	280 0	400 0	140 0	200 0	200 0	200 0	200 0	46 0	50 0
Guaicum . . . per lb.	0 9	1 9	0 9	1 5	1 5	1 5	1 5	40 0	42 0
Kino per cwt.	300 0	380 0	340 0	460 0	460 0	460 0	460 0	40 0	42 0
Kowrio	30 0	80 0	26 0	60 0	60 0	60 0	60 0	0 0	0 0
Mastic, picked . . . per lb.	12 0	13 0	8 6	9 6	9 6	9 6	9 6	0 0	0 0
Myrrh, gd. and fine, per cwt.	130 0	160 0	130 0	180 0	180 0	180 0	180 0	0 0	0 0
sorts	70 0	110 0	70 0	130 0	130 0	130 0	130 0	19 0	23 0
Olibanum, pale drop	69 0	72 0	68 0	80 0	80 0	80 0	80 0	7 0	17 0
amber and yellow	50 0	68 0	60 0	68 0	68 0	68 0	68 0	2 6	6 0
mixed and dark	20 0	48 0	16 0	44 0	44 0	44 0	44 0	0 4	1 3
Senegal	90 0	105 0	70 0	80 0	80 0	80 0	80 0	0 0	0 0
Sandrae	80 0	100 0	72 6	95 0	95 0	95 0	95 0	47 6	0 0
Tragacanth, leaf	200 0	280 0	200 0	280 0	280 0	280 0	280 0	53 0	0 0
in sorts	70 0	130 0	80 0	160 0	160 0	160 0	160 0	170 0	175 6
OILS.									
Seal per tun	£ 47 0	£ 0 0	£ 37 0	£ 44 0	£ 44 0	£ 44 0	£ 44 0	162 6	185 0
Sperm, body	130 0	0 0	105 0	0 0	0 0	0 0	0 0	175 0	0 0
Cod	48 0	0 0	49 0	0 0	0 0	0 0	0 0	8 0	0 0
Whale, Greenland	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
South Sea, pale	42 0	44 0	42 0	45 0	45 0	45 0	45 0	0 0	0 0
East India Fish	35 0	0 0	30 0	31 0	31 0	31 0	31 0	0 0	0 0
Olive, Gallipoli . . . per ton	56 0	56 10	53 0	54 0	54 0	54 0	54 0	0 0	0 0
Florence, half-chest	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
Cocoonut, Cochlin . . per cwt.	57 6	58 6	45 6	46 0	46 0	46 0	46 0	0 0	0 0
Ceylon	47 6	49 0	43 6	0 0	0 0	0 0	0 0	0 0	0 0
Sydney	43 0	49 0	37 0	42 0	42 0	42 0	42 0	0 0	0 0
Ground Nut and Gin									
Bombay	53 0	0 0	30 0	40 0	40 0	40 0	40 0	0 0	0 0
OILS—continued.									
Madras per cwt.	50 0	51 0	43 0	43 0	43 0	43 0	43 0	0 0	0 0
Palm, fine	42 6	43 0	36 0	39 0	39 0	39 0	39 0	0 0	0 0
Linseed	41 6	42 0	36 0	36 0	36 0	36 0	36 0	0 0	0 0
Rapeseed, English, pale . . .	43 0	0 0	47 0	0 0	0 0	0 0	0 0	0 0	0 0
brown	40 6	0 0	46 6	0 0	0 0	0 0	0 0	0 0	0 0
Foreign pale	44 0	44 6	47 6	48 0	48 0	48 0	48 0	0 0	0 0
brown	41 6	0 0	48 6	0 0	0 0	0 0	0 0	0	

